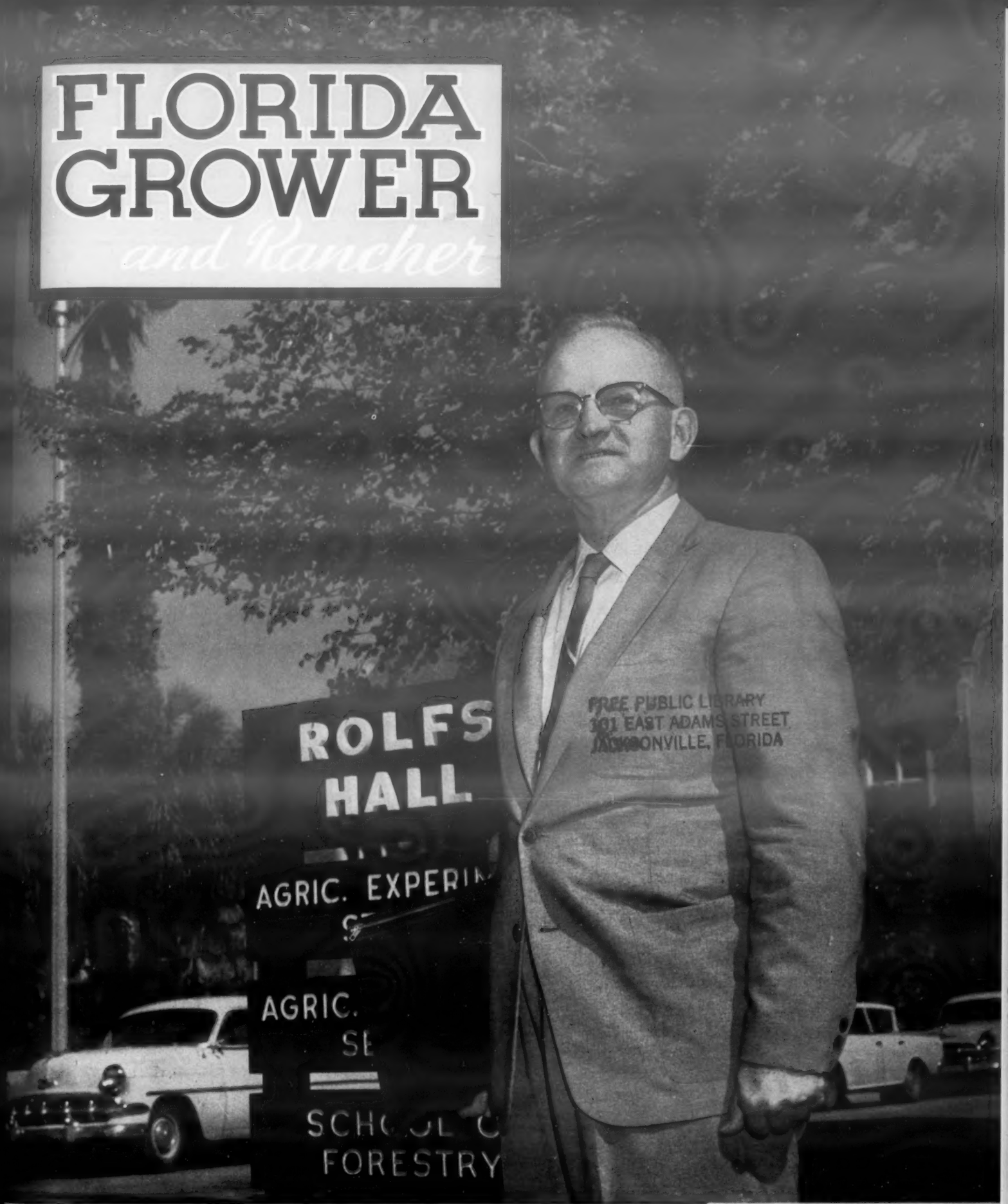
FLORIDA GROWER
and Rancher



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J. FRANCIS COOPER: Editor of Florida Agriculture

Overwrap Gives Eggs 'Buy' Appeal

★ ★ ★

New Race of Fusarium Wilt

★ ★ ★

May 1961

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The Cover . . .

Perhaps once in every generation an occasion arises which calls for signal recognition of an individual. In these instances, FLORIDA GROWER & RANCHER feels its highest tribute is to picture such a person on its cover.

This month's cover, therefore, salutes J. Francis Cooper. Until his April 30th retirement, he was editor of Florida's Agricultural Experiment Stations and Agricultural Extension Service.

For more on Cooper, see the editorial on page 28.

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"Hadn't you better save your strength? You've got a lot of paint to get off that tractor."

How smart are YOU?

1. What is the "ridge" of a mountain?
2. If a foolish goat is a "silly billy," what is a pretty picture?
3. With what does admiralty law deal?
4. From whom were North and South Dakota purchased?
5. What is a "cock-and-bull" story?
6. Exactly when does the estival season begin?
7. What woman wrote the best seller of the 1930's?
8. During what year of a child's life does he grow most rapidly?
9. Was "Beau Brummel" a real or fictitious character?
10. Is Peru on the east or west coast of South America?

(Answers on Page 22)

FLORIDA GROWER and RANCHER

TAMPA, FLORIDA — MAY, 1961

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FLORIDA TREND

Coming Events

May 5: Gulf Coast Experiment Station vegetable field day, Bradenton.

May 10: Indian River Field Laboratory vegetable field day, Fort Pierce.

May 11: Vegetable crops field day program, Everglades Experiment Station, Belle Glade.

May 12: Florida Angus Jubilee Sale, Palmetto.

May 17: Florida Watermelon Festival, Leesburg.

May 18: Vegetable crops field day, Central Florida Experiment Station, Bradenton; starts 1:30 P.M.

May 19: Central Florida Station program at Muck Farm plots, Zellwood, starts 9 A.M.

May 23-24: Southeastern Dairy Cattle Clinic, Fort Lauderdale.

May 30-31: 8th annual South Florida Citrus Institute, Camp Cloverleaf.

June 13-17: Florida FFA convention, Daytona Beach.

June 14-16: Florida Cattlemen's Association mid-year convention, Clewiston.

Florida's Finest Citrus Trees — Select Breeding — Vigilant Care

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Citrus CLOSE-UPS

By FRED P. LAWRENCE

Citriculturist
Florida Agricultural Extension Service

The 1961 Season ... as It Now Looks

Remembering the slip 'twixt the cup and the lip, and the advice not to count your chicks . . . yet there are a few significant facts which lead us to believe the 1961-62 citrus crop will be one of the finest in history. Both internal and external quality should be outstanding.

Research has proven that weather conditions (temperature, rain, humidity) exert a pronounced influence on fruit quality. Not only does it affect the vigor of the tree and the internal quality of the fruit, it also influences the external quality through its effect upon disease and insect populations.

New growth started later than usual this year, due to one of the coldest winters in recent years. (Here we speak of the total hours during the winter when the temperature was under 45°F.) This, following two wet years, ample fertilizers and good cultural practices caused citrus trees to go dormant and rest over a longer period than normal.

Thus, when conditions were right, in mid-February all trees put forth a uniformly vigorous flush of growth that expanded rapidly dur-

(Continued on Page 6)

CONIBEAR GROVE SPREADER
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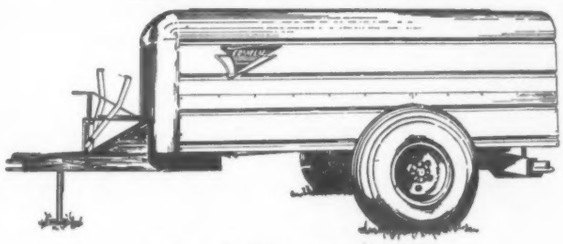

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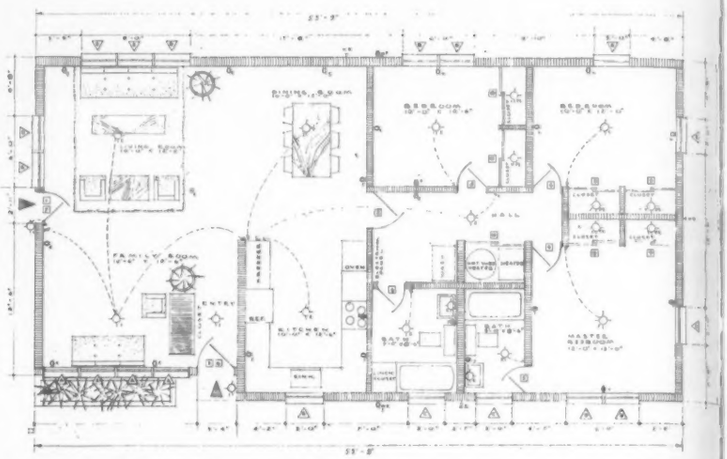
Good Plans for GOOD BUILDING

By T. C. SKINNER

Extension Agricultural Engineer
Florida Agricultural Extension Service



A LOT OF HOME has been compacted into the plan shown here. The side exit between the family and living rooms (left, above) leads to the carport and an enclosed storage room.

'Compact' 3-Bedroom House

NOWADAYS EVERYONE hears a lot about compact automobiles. But did you ever hear about a "compact house?" A compact house has to be far more than just small – it also has to be functional, convenient, and livable.

Shown here is Florida Plan 106 which meets all of these requirements. It is for a three-bedroom, concrete masonry home with two full baths. Each bedroom has two large closets.

The large U-shaped kitchen opens directly into the dining area. You will note that only one wall separates the kitchen, dining, living, and family areas, yet each area is distinctive. A lot of home has been compacted into this plan!

If you would like a copy of this plan, contact your local county agent or home demonstration agent. Ask for Florida Plan 106.

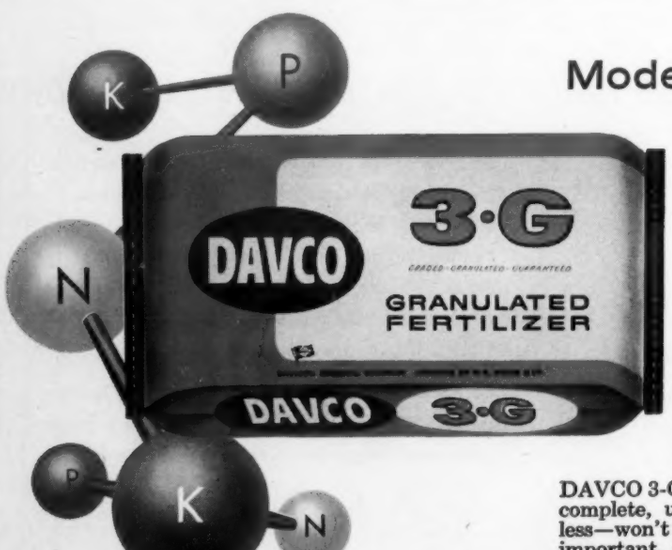
Plans may also be obtained by addressing your request to: T. C. Skinner, Extension Engineer, Agricultural Extension Service, University of Florida, Gainesville.

* * *

Honey is said to contain, in some amount, every substance found in the human body. Florida is a leader in commercial production of honey, especially tupelo and orange blossom kinds.

* * *

"Hand me the rachet wrench, a short bolt, a lock washer, and a fried chicken."



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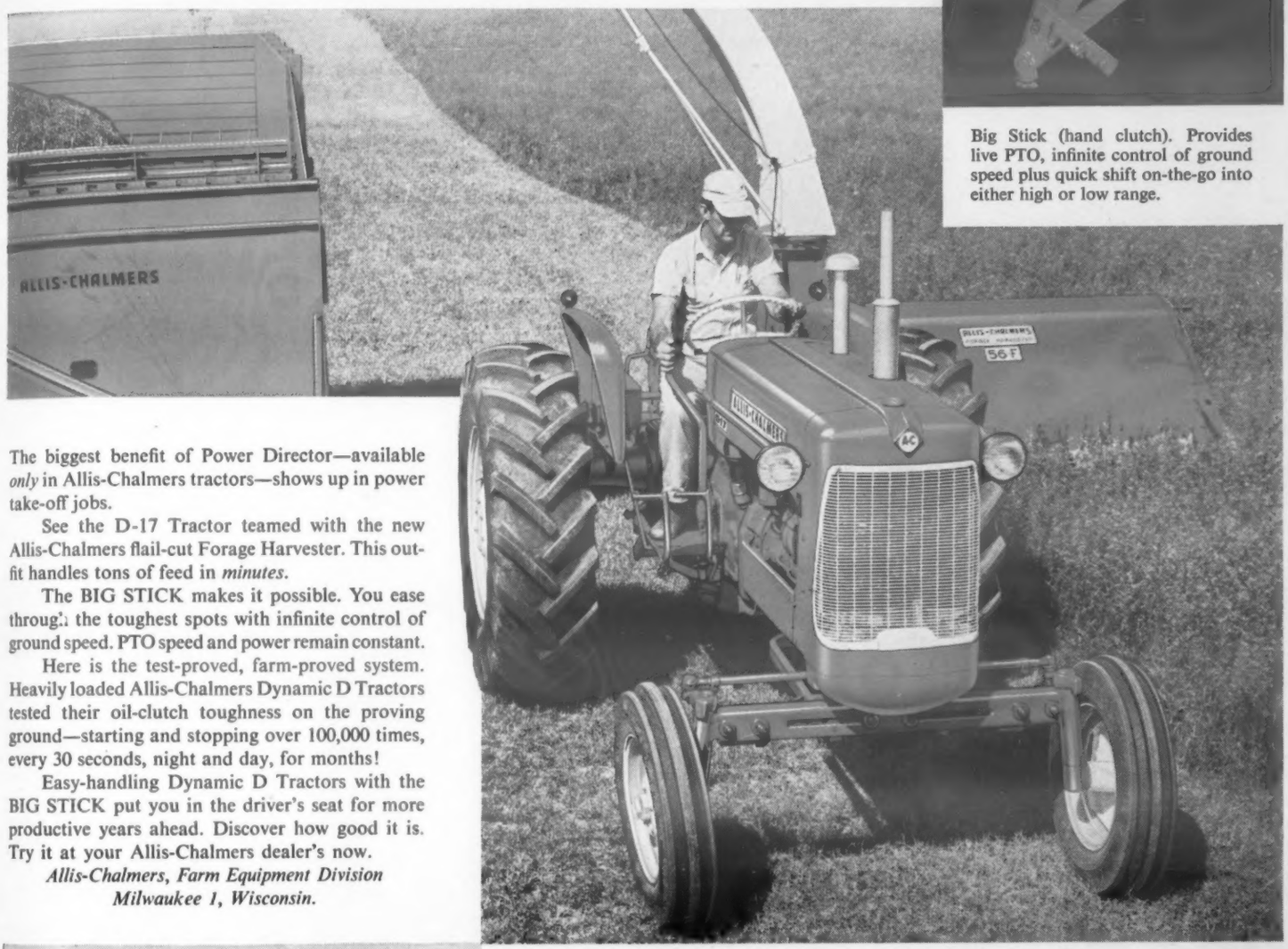

The biggest benefit of Power Director—available *only* in Allis-Chalmers tractors—shows up in power take-off jobs.

See the D-17 Tractor teamed with the new Allis-Chalmers flail-cut Forage Harvester. This outfit handles tons of feed in *minutes*.

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Here is the test-proved, farm-proved system. Heavily loaded Allis-Chalmers Dynamic D Tractors tested their oil-clutch toughness on the proving ground—starting and stopping over 100,000 times, every 30 seconds, night and day, for months!

Easy-handling Dynamic D Tractors with the BIG STICK put you in the driver's seat for more productive years ahead. Discover how good it is. Try it at your Allis-Chalmers dealer's now.

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All-New 56-F Flail-Cut Forage Harvester—DOUBLE CUT for the cleanest chopping you've ever seen from this type machine. Grass silage made with the 56-F can be easily removed from the silo; ideal for green feeding; chops corn stalks or stubble, clips pastures, collects straw for bedding.

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AS TOUGH AS YOUR BIG TRACTOR—rugged frame and heavy rotor are built to work with modern big-horsepower tractors. At its working weight of 1¼ ton, the 56-F is a heavy-duty champion.

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TRENTON	Lee Roberts Motors, Inc.
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Citrus Close-Ups

(Continued from Page 3)

ing the unseasonably warm days of March. This situation contributed to a uniform (as to time) bloom, nearly all of which was on new wood.

In addition, this situation contributed to the lowest spring population of aphids on record. Too, the rapid growth plus the lack of prolonged rainy periods resulted in a very light melanose infection of leaves.

Add to this good weather throughout the post-bloom spray period and one can reasonably expect a crop of the brightest, high quality fruit in many years.

Looking Ahead Dr. W. E. Black, economist, Florida Citrus Commission, had this to say during the March 21, 1961 annual meeting of the Florida Citrus Production Credit Association:

"If production in the next 10 years increases as in the past 25 years, then we can expect 135 million boxes of oranges in Florida in 1970. This is based on projected acreage and bearing surface. Of course, if you receive substantially lower prices and cut back cultural practices and fertilization, the total orange production in 1970 will be less than 135 million boxes.

"Production increases in Florida in the decade ahead will occur in oranges, including Temples, but not significantly in grapefruit or tangerines.

"Florida's grapefruit production will drop slightly from the 1953-54 peak; the 1970 production capacity will be 40 million boxes, unless there is an early breakthrough in new processing technology. Tangerine production in 1970 will be similar to that of the past decade, or 5 million boxes of tangerines.

"In 1970, therefore, Florida could produce 180 million boxes of oranges, grapefruit, and tangerines . . . or a volume greater than the current total U. S. production."

Dr. Black had many other interesting things to say. All of which leads us to this conclusion:

Vertical integration, urbanization, the rapid expansion of citrus acreage, loss of skilled labor, problems of taxation, zoning, water management and the over-shadowing of agriculture by every-day happenings of the space age foretell the need of better organized programs and better trained personnel in research, extension and industry to supply the leadership to develop needed products and programs for a successful agriculture.

South Florida Citrus Institute May 30 and 31 are the dates on which the 8th annual South Florida Citrus Institute will be held at 4-H Camp Cloverleaf, near Lake Placid. This two-day meeting will be staffed by research men from both the state and the federal Experiment Stations, Extension Service personnel, and industry representatives.

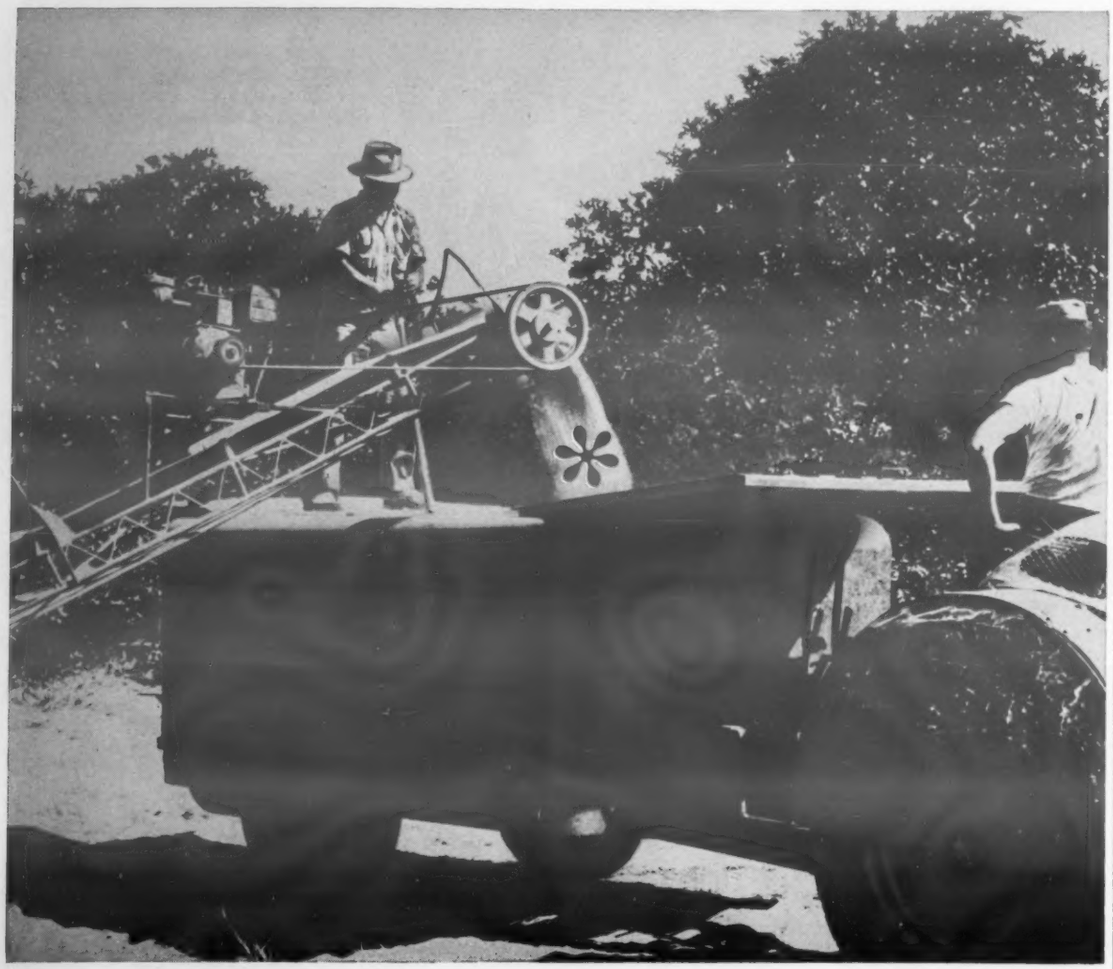
In addition to up-to-the-minute research reports, there will be a machinery show. This year's machinery display will feature spray machines but all implement dealers have been invited to display other implements as well.

The complete program will be found elsewhere in this publication.

New Circular Available Agricultural Extension Circular 211, "Small Power Tools for Pruning Citrus" is just off the press. Written by Dr. A. H. Krezdorn, P. J. Jutras, and Dr. Dale Kretchman, the report deals chiefly with the use and limitations of the various pruning tools currently on the market.

Numerous photographs and illustrations are found in the circular. It also includes basic information on operation methods, safety precautions, and care of equipment.

Copies are available through your local County Agricultural Agent's office or by writing to the Agricultural Extension Service, University of Florida.



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He uses Hi-D because there's no other ammonium nitrate like it! Hi-D is made by an exclusive patented process that results in special-shaped granules that assure even distribution of the nitrogen throughout the mix. These strong, high-density Hi-D granules resist break-up and are easy to handle. Super dry Hi-D stays dry in storage, in handling, and in the field — even on hot, sticky days.

What's more, Hi-D furnishes the two types of nitrogen crops do best on — nitrate nitrogen for strong early growth—ammonia nitrogen for sustained follow-up feeding. This makes it ideal for mixed goods. Hi-D contains 33.5% nitrogen which makes it ideal, too, for supplementary feedings to give crops a nitrogen boost.

Check with your local fertilizer supplier — he'll make recommendations on timing the applications and on placement. He'll also be glad to give you the benefits of his long experience in tailoring fertilizers for maximum crop yields.

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Plant Food Pointers
. . . in August
Two **Extra**-Special Issues!

'Economic Abandonment' of Grapefruit Seen Possible

THE SPECTRE of "economic abandonment," something which hasn't happened to any variety of Florida citrus in several years, looms as a possibility this season on pink and red grapefruit.

"Economic abandonment" is the official phrase used to classify fruit which has not been utilized through some outlet. Usually it means fruit that has been permitted to drop on the ground, or has been picked and dumped, because no one wanted to buy it.

Harvesting of the 1961 grapefruit has lagged far behind the same date of last year. On the other hand, the crop actually was a month or six weeks later than usual in getting ripe enough to be picked.

All of this means that the selling season will be several weeks longer this year, thus giving that much more time in which to dispose of the crop. Even this extra selling period, however, seems hardly long enough for all the pink and red grapefruit to be used.

No one actually knows how much grapefruit was hanging on the trees when Hurricane Donna came along. But it is popularly believed the crop involved approximately 42 million boxes, possibly more.

When the most destructive hurricane in this state's history had done its damage, the U. S. Department of Agriculture estimated (on October 1, 1960) that there were 30 million boxes left.

Since then, the government has upped its forecast by 1 million boxes. The official forecast as of April 10 was for a crop of 31 million boxes.

Even this reduced crop, however, seems to be larger than the market can comfortably absorb.

In mid-April, for example, the fresh fruit market had taken only 9.6 million boxes of grapefruit. This amounted to 2 million boxes less than the 11. 7 million boxes on the same date last season.

Canners, too, were 2 million boxes behind last year's usage to this time – 11.5 million boxes as against 13,341,500 boxes.

This season's crop is just a shade bigger than that of last season, 31 million boxes compared to 30.5 million for 1959-60. But the amount used up to now is 4 million boxes less, 23.5 million against 27,650,000 boxes.

All of this means that the industry still must use approximately 7 million boxes from the middle of April on. This amounts to about 5 million boxes more than were still left last year at this time.

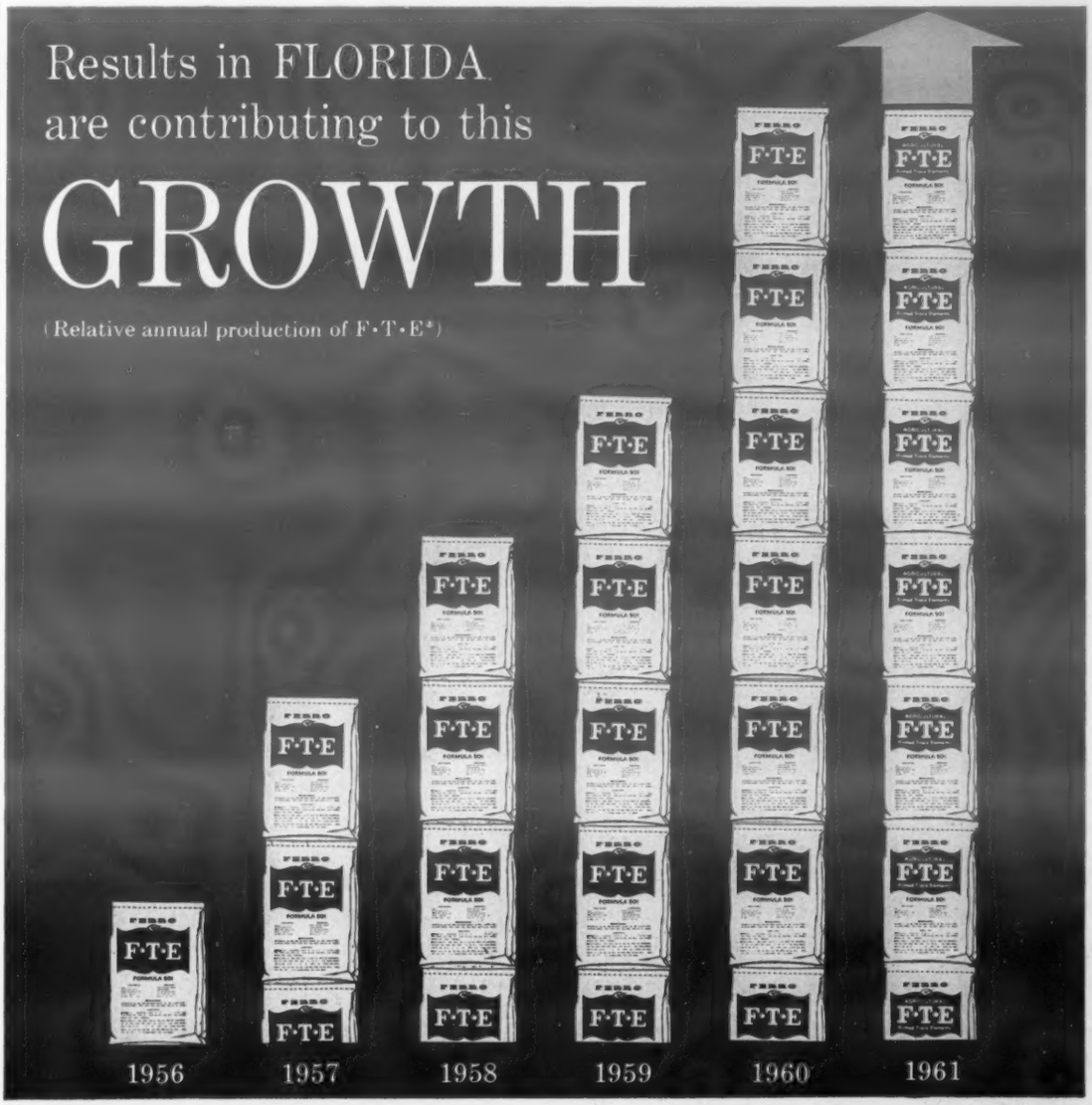
Merchandising campaigns are being vigorously promoted, with the nation's chain and independent stores lending a much needed and welcome helping hand. The Florida Citrus Commission is conducting all the special advertising and other promotional work its grapefruit funds will permit.

Yet, even with all this, it will not be surprising if the final tabulation shows that a half million boxes of red and pink grapefruit were never used . . . or, as the government puts it, were "economically abandoned."

One result of the current situation may carry over into future situations. This is the fact that the housewife is getting her fresh grapefruit these days at genuine bargain prices.

Grapefruit, in fact, is by far the biggest bargain of any commodity in the fruit and vegetable division of most stores. And housewives, more price-conscious these days than ever before because of the lessened business activity and consequent threat to their husbands' paychecks, are turning to grapefruit

(Continued on Page 14)



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More than a million acres of land will be made more productive this year through the use of FTE in fertilizers and limestone top dressings. Ask your dealer about these fine products . . . or send for free *illustrated booklet.*

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Agricultural OUTLOOK

Eggs In March, egg prices were running above those of a year ago – but by a narrower difference than in the preceeding six months.

Second quarter egg prices will be lower than the year before. And because of the prospective increase in egg supply, the seasonal price rise this fall is likely to be smaller than in recent years.

Hogs Marketings of hogs are declining seasonally. They are expected to continue below 1960 levels until about mid-year.

Cattle Prospects are for relatively stable cattle prices this spring. Marketings of cattle are running above a year ago and will probably continue above during the next few months.

Dairy With an expected increase in milk production, both cash receipts from dairy products and income to dairy farmers will be higher this year than in 1960.

On March 10, price supports for manufacturing milk were raised from $3.22 to $3.40 per hundredweight; for butterfat, from 59.6 to 60.4 cents per pound. The higher supports mean higher prices to farmers for these products in 1961 and early 1962.

Vegetables Supplies of a number of tender fresh vegetables were much larger this past winter than during the previous ones. These included snap beans, cucumbers, sweet corn, eggplant, green pepper, and tomatoes. Prices for these items were much lower than the relatively high prices of a year earlier.

Production estimates for a few early spring crops indicate lettuce, onions, and asparagus substantially smaller than a year ago. Production of broccoli and cauliflower are expected to be moderately smaller.

Acreage in prospect for early spring tomatoes is about the same as last year. That of cabbage will be about a tenth larger.

Supplies of potatoes during the next few months are likely to remain materially below those of a year earlier.

(EDITOR'S NOTE: The above was adapted from the May issue of the USDA's "Agricultural Situation" report.)

Quality is your best investment

What decides your best buy in fertilizer– price or crop yields?

WITH fertilizer, like just about everything else, you get only what you pay for. Sometimes, what seems to be a terrific bargain because of a low price tag turns out to be a disappointment. Your best fertilizer investment usually costs a few cents more an acre to use.

The most sensible way to decide your best buy in fertilizer is to *look at your crop yields.* That's the reason you buy a fertilizer in the first place—to boost the value of your crop higher than the cost of production.

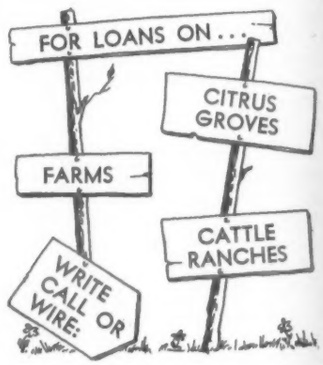
Farmers every year prove that AGRICO gives them the most value for their dollar because it's formulated with high quality plant foods. *You will too.* Contact your nearby agent and ask him for AGRICO. Your crop yields will prove it's your best investment.

Farmer and Agrico fieldman check corn yields in one of 179 field comparisons between AGRICO and other fertilizers. Agrico-fertilized corn averaged six extra bushels, made $7.03 extra profit per acre over fertilizer cost.

Follow the Agrico Program by using the rates and analyses of AGRICO fertilizer best suited to give you greatest profit. A trained Agrico fieldman will take samples of your soil, note field history and management. Agrico agronomists then analyze your soil and make recommendations to fit your crop, soil, rotation and management program. You receive a report of their recommendations for more profitable crops.

Better results... the **AGRICO** *Difference*

THE AMERICAN AGRICULTURAL CHEMICAL COMPANY



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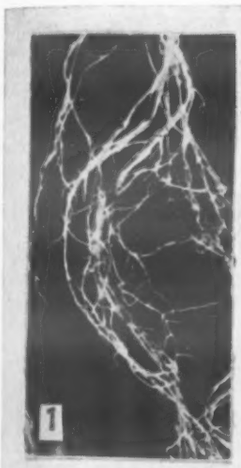
By J. A. WINCHESTER and N. C. HAYSLIP

Pangolagrass Aids Nematode Control



CUCUMBER ROOTS showing effect of land management on population levels of root-knot nematodes. Cucumber plants were growing in soil collected four months after the following treatments were established:

1 - Pangolagrass
2 - White Clover
3 - Pangolagrass plus White Clover
4 - Pensacola Bahiagrass
5 - Coastal Bermudagrass
6 - Carpetgrass
7 - Clean Fallow
8 - Okra

VIRUS AND SOIL-BORNE DISEASES, most soil insects, parasitic nematodes, and competitive weeds and grasses present problems to all vegetable growers. Frequently, the seriousness of these problems is directly related to previous use and management of the soil.

When vegetables are produced on virgin soils, these problems are usually only minor ones. Good drainage, aeration, and resistance to erosion and sand burn during heavy rains and strong winds are favored by the incorporation of the native sod into vegetable seedbeds.

In contrast, soils farmed over a period of years have many of the production problems mentioned. These problems, of course, increase costs. Too, they often reduce both the quality and quantity of vegetables produced. So tomato farmers, for example, find it more profitable to go to great lengths – to clear, ditch, dike, install pumps and wells, and construct graded roads to virgin lands each season – rather than deal with the problems on previously-cropped soils.

During the past 10 years, various workers at the Indian River Field Laboratory have been concerned with the re-use of "old" tomato farms. From their studies has evolved a land management practice utilizing pangolagrass between periods of tomato production.

The importance of pangolagrass as a pasture grass is well known. But the advantages the tomato-pangolagrass rotation offers to both ranchers and growers may not be as fully realized.

For the cowman, the production of tomatoes every three to five years provides a systematic plan of renovating a pasture when its productivity drops. The cultivation,cleaning of ditches, repair of dikes, application of lime, and generous use of fertilizer (all practices necessary for tomato production) result in a rejuvenated pasture following the tomato crop. Furthermore, the removal of cattle during production of tomatoes provides a break in the cycle of certain animal parasites and diseases.

Vegetable growers benefit from the rotation several ways, too. For one thing, pangolagrass competes well with pest weeds and grasses. It also helps to hold down certain soil disease organisms such as *Rhizoctonia solani.* In addition, it develops a sod which resists wind and water erosion and which promotes good drainage and aeration of the plant beds during periods of heavy rainfall.

Still another advantage of pangolagrass in rotation with tomatoes has recently been discovered. Work at the Indian River Field Laboratory revealed that root-knot causing nematodes disappear rapidly during the growth of pangolagrass on infested land.

One of the most widespread and destructive of the parasitic nematode species in Florida, the cotton root-knot nematode *(Meloidogyne incognita acrita)* developed on pepper research plots in the fall of 1959. The plants were transferred to outdoor confinement chambers by planting severely galled pepper plants in each of 48 chambers.

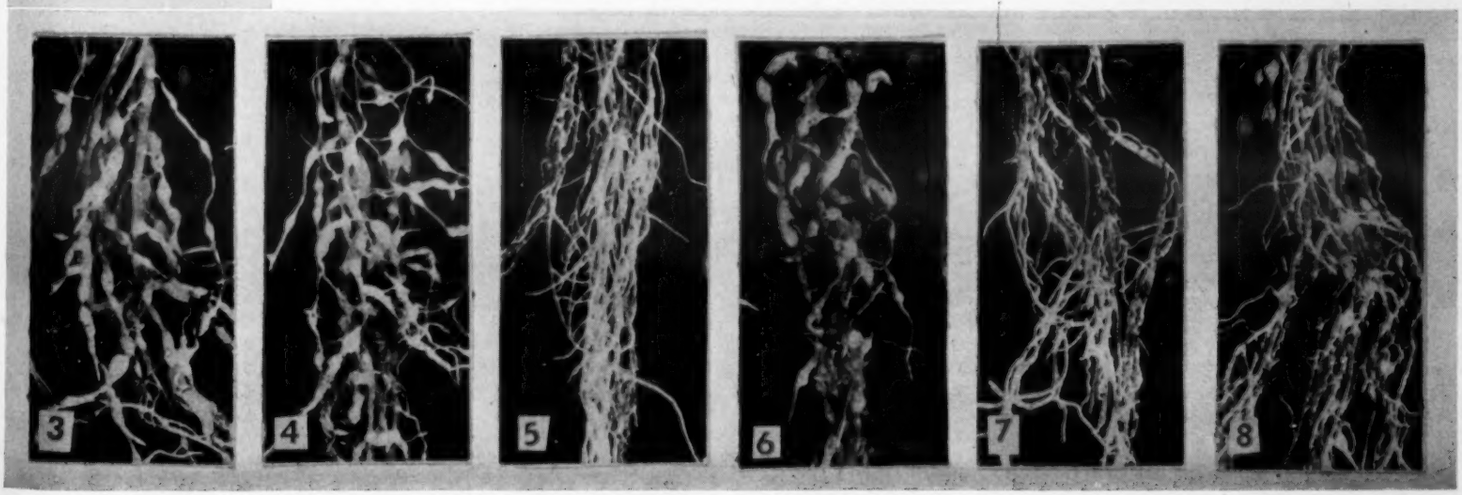
Later, the pepper plants were cut off at soil level and the first experiment was established. Treatments, randomized and replicated, consisted of clean fallow; pangolagrass; pangolagrass plus white clover; white clover; Coastal Bermudagrass; Pensacola bahiagrass; okra, and carpetgrass.

Four, six, and eight months after the treatments were established, the nematode populations were checked by removing soil samples from each chamber and transferring these samples to paper cup containers in which cucumbers were seeded as indicator plants. The roots of two-week-old cucumber seedlings were examined and rated for root-knot nematode galls.

A second experiment was conducted in a similar manner. However, several additional plant species were added and nematode populations were determined more frequently.

Pangolagrass planted in these small outdoor confinement chambers of root-knot infested soil appeared to have completely eliminated the nematodes eight weeks after planting the grass sprigs. Similar results were obtained in the

(Continued on Page 25)



DISEASED MANALUCIE PLANT showed discoloration of the vascular system of the stem when bark was removed.

New Race of Wilt

By DR. JAMES M. WALTER
Plant Pathologist
Gulf Coast Experiment Station
Bradenton, Florida

FUSARIUM WILT is again showing its unwelcome symptoms in Florida's tomato fields. In recent years, this disease has been circumvented by the use of wilt-resistant tomato varieties. But the current culprit is an entirely new strain of Fusarium, one that attacks the stocks bred for resistance.

Dr. Robert E. Stall, assistant plant pathologist at the Indian River Field Laboratory, Fort Pierce, first discovered the new type of wilt in March 1960. During a routine survey of a 400-acre commercial planting near Delray Beach, he found plants of the tomato varieties Manalucie and Manapal showing severe symptoms of Fusarium wilt.

This discovery was disturbing because both Manalucie and Manapal had been bred for resistance to Fusarium wilt and, prior to the outbreak, this resistance had amounted to field immunity in Florida. Properly alarmed, Dr. Stall promptly made cultures from affected plants.

As the cultures from the sick plants appeared to be a new race of the fusarium wilt organism, Dr. Stall immediately used them to inoculate young plants of Indian River and Homestead 24, two more commercially important Florida varieties bred for resistance to the wilt disease.

By April 13, 1960, these inoculated plants proved to be very susceptible to the new wilt strain.

Comparative inoculations of many varieties, lines, and P. I. accessions of tomatoes with several other Fusarium isolates have made two things clear: The varieties bred for resistance to the common strains of Fusarium were still resistant to those strains. On the other hand, these same resistant varieties were susceptible to the new strain which infested the one farm near Delray.

External symptoms which flagged Dr. Stall's attention to the outbreak included yellowed older leaves, unilateral wilting, and chlorosis of the plants. Investigating further, he removed the bark of infected plants and noted discoloration of the vascular systems of the stems. (See photo, courtesy Dr. Stall)

When the disease was discovered, plants with external symptoms were concentrated within an area of approximately five acres. In addition, some diseased plants were scattered throughout the 400-acre planting.

By the end of the crop season, the disease had so spread that nearly all plants examined had some degree of vascular discoloration.

Growers must expect that the new wilt strain will spread in the same fashion as the common types have spread to practically all land used for tomatoes in Florida.

Moving water is perhaps the principal natural means of the spread of fungus from infested to raw land in the same vicinity in this state. Too, damp soil moved by animals may account for some of the spread.

Farmers are known to move the fungus from one field to another with cull fruits and damp soil carried on their machinery. They must be extremely careful not to let water from an infested field run into an uninfested planting. And they should always disinfect machinery before moving it into a Fusarium-free area.

Long-distance spread of the disease is believed to be the result of the unconcern of man. Unthinkingly he takes it along in soil carried on machines, with transplants from one field or district to another, and in fruits harvested from severely diseased plants.

Of course, there may be still other important but completely different means of dissemination of fungus about which nothing is known to date.

Whether our understanding of the ways and means of spread is complete or not, one important fact stands out: The record of the spread of the common strains of Fusarium is cause for grave concern about the new strain pathogenic on the currently important varieties.

Much has been written about the value of tomato varieties resistant to fusarium wilt. The expensive practice of moving to new land each year developed because growers could not effectively protect their fields against the invasion and spread of the fungus disease.

Research then came up with such wilt-resistant varieties as Manalucie, Homestead 24, Manapal, and Indian River. With their advent, growers have found they could raise crops on the same land for as long as seven or eight years before other factors would compel them to move into new locations.

However, the new race of the Fusarium wilt organism nullifies the resistance to the disease in the heretofore resistant varieties; they are entirely susceptible to the new race. Thus, the value of resistance is in jeopardy.

If the new race becomes widespread, farmers will not be able to economically raise crops two years in a row on the same land without special treatment. They will have to move to land that does not have the same race established or else fumigate the land each year to rid the soil of the fungus.

No one has yet learned how to make use of modern soil fumigants for economic control of Fusarium wilt. The writer has incidental experience indicating that certain chemicals, in applications costing about $50 per acre, will give good control for a 100-day crop season; but he has made no special study of the question.

The horrible truth is that the varieties bred for resistance to the common strains of the fungus disease had seemed such effective solutions to the Fusarium problem that, prior to March of last year, no one had considered a second line of defense necessary.

Dr. Stall's inoculation tests have resulted in one type of information that is favorable: Six small cherry tomatoes, representing wild species from South America, have been found to be resistant to the new Fusarium strain. And the resistant accessions, whose fruits do not exceed one-half inch in diameter, are known to be cross-fertile with our cultivated tomatoes.

The facts presented in the preceding paragraphs were established in mid-summer of 1960. Since then, the tomato breeding program under State Project 398 has been giving top priority to efforts to combine the resistance to the new race of wilt with the desirable features of our best varieties and lines of tomatoes.

Second-generation hybrids from the first crosses are presently under study. If some of these hybrid plants prove to be resistant and to have medium-sized fruits, they will immediately be mated with our best large-fruited varieties.

In case it is found that the resistance is determined by a single dominant gene, backcrossing will be done for three or four generations – two per year – to advance the resistance to commercial-type tomatoes as rapidly as possible.

With luck, the resistance and commercial size of fruits could be combined in several true-breeding, prolific lines by 1965.

Lest the last few statements make it seem that breeding a new disease-resistant tomato is almost as readily done as said, it must be quickly pointed out that another essential fea-

(Continued on Page 20)

What you should know about *Ronphagrass*

By DR. O. CHARLES RUELKE
Assistant Professor of Agronomy
University of Florida, Gainesville

FLORIDA CATTLEMEN have repeatedly asked for a permanent pasture grass which would provide fresh green forage during the winter, when most perennial grass pastures are dormant. When ronphgrass was brought to America from South Africa several years ago, hopes were high that such a grass had been found. Since it tolerated severe frosts, ronphagrass looked like a very promising grass for Florida needs.

Scientific data was needed to prove its true value, however. A small quantity of ronhpagrass was obtained in the fall of 1957 and placed under intensive study at Gainesville. Since that time, many facets of the grass – its structure, habit of growth, productiveness, feed analysis, and palatability – have been exhaustively investigated. The performance of animals grazing on ronphagrass has also been thoroughly tested.

Data compiled to date indicates that, unfortunately, ronphagrass is far from being a satisfactory grass for Florida needs. Findings which point to this conclusion are given below in italics.

Ronphagrass is a perennial bunch type grass which produces leafy stems one and one-half to three feet tall. When permitted to reach maturity, it develops a terminal spike like inflorescence which may reach five feet in height. Theo Wassenaar of Transvaal, who patented the name, claims ronphagrass is a cross between large canarygrass, reed canarygrass, and Hardinggrass.

Because *the seed are not viable*, ronphagrass must be established from portions of the crown and roots. The plant develops an enormous root system and the crown will expand from six to 18 inches in diameter in one year. Unlike bermudagrass, it does not have underground stems or above-ground runners. Portions of ronphagrass are usually set in rows and cultivated until they become established.

Yields of ronphagrass were less than yields of the best adapted varieties of winter oats and rye. This was shown in several yield trials which compared the productivity of ronphagrass with several varieties of various cereal grains grown in the winter. Frequent clippings were made to determine the total yield and seasonal distribution of forage.

Table I shows the average pounds of dry matter produced per acre at various intervals during the winter of 1959-60. These data show that most varieties of oats and rye will outyield ronphagrass. During colder winters, rye will outyield oats. Ronphagrass usually outyields wheat.

It should be noted that ronphagrass continued to produce fresh green forage into the early summer, when the cereal grains matured. However, *ronphagrass becomes dormant* during the late summer months.

Productiveness of ronphagrass has been measured under Florida conditions during the past two summers. While the plant remained alive the year around, it ceased to develop fresh green leaves and shoots during late summer and early fall. Instead, the top growth turned dry and brown until the dry fall period had passed and until the nights turned cool. Growth resumed by the time winter had come.

Ronphagrass will tolerate severe frosts which would kill back the leaves of cereal grains. When it was grown alongside several varieties of winter rye, wheat and oats, ronphagrass has shown no evidence of frost damage. On the other hand, there was from limited to considerable frost damage to the winter rye, wheat and oats varieties tested at the same time.

Crude protein content was high in the forage of ronphagrass, as shown by the chemical analysis of the leafy forage given in Table II. When the crude protein values shown in this table were converted from the wet basis to the percentage crude protein of the dry forage, it was found that ronphagrass contained 24.5% crude protein.

This high protein percentage was possible because the forage consisted primarily of leafy stems. The leaves of this grass were pale bluish-green in color. Approximately one-half inch in width, the leaves varied from eight to 20 inches long.

Ronphagrass was not palatable to beef cattle. Rows of ronphagrass and cereal grains were arranged at random in an experimental planting for this phase of research. Half of each row was harvested to determine the amount of forage present. Immediately afterward, Hereford and Angus steers were permitted to graze the remaining half of the rows and choose freely the grass they liked best. When the steers had grazed their fill, they were removed and the remainder of the grass left ungrazed was harvested.

Shown in Table III are the percentages of the forage consumed. These data clearly show that ronphagrass was the least palatable of the grasses tested.

A BUNCH-TYPE perennial grass, ronphagrass produces fresh green forage during the winter. However, as the top photo illustrates, ronphagrass (row 43) was the least palatable of the grasses tested by grazing steers.

Possibly the most important thing you should know about this grass is that *ronphagrass was toxic to sheep* in a feeding experiment in Florida. During the fall of 1959, portions of ronphagrass were transplanted into rows and kept free of other grasses and weeds.

Four Hampshire-Western crossbred sheep, averaging 94 pounds body weight, were placed in individual digestion stalls and fed fresh-cut ronphagrass. After a one-week feeding period, to permit the sheep to become adjusted to ronphagrass, half of the sheep were fed for one additional week; the other half were fed for two additional weeks.

At first, the sheep refused to consume large amounts of the fresh-cut

(Continued on Page 18)

Citrus Insect Control for Summer 1961

By
W. L. THOMPSON, W. A. SIMANTON, and R. B. JOHNSON
Florida Citrus Experiment Station, Lake Alfred

APPROACH of the 1961 summer spray season finds rust mite entering the period in greater abundance than in the prior ten years. Red scale population also is expected to be above normal. Control of these two pests plus the foliage disorder known as greasy spot will be the object of most summer sprays.

Whitefly and black scale will be present in many groves. Unless controlled, they will contribute to formation of sooty mold.

Citrus red mite is less prevalent than in prior years but Texas citrus mite will be about as abundant as in 1960. Both of these mites reach their summer peak in June and heavy infestations capable of graying foliage may be expected during the summer months in about 40% of groves.

Both chaff scale and purple scale are present in a majority of groves. These two scales are capable of causing green spots on fruits of tangerines, Temples and early oranges, thus reducing the marketability of those varieties.

Natural control factors are expected to hold the two scale species to non-injurious levels generally. However, a field check should be made at intervals to determine if natural control is adequate in each grove.

The second basic spray of the year is the summer application for control of rust mite, scale insects, whitefly and greasy spot. This should be a thorough application because most of the scale and all of the whitefly larvae are on the under surface of the leaves and the best rust mite miticides have no fumigative effect.

Formerly, the summer application was timed for scale control. But since purple scale is now of minor importance in most groves, the summer spray should be timed primarily for rust mite. This pest starts to increase rapidly in early June.

On the other hand, if a post-bloom scalicide was applied, it may be desirable to delay the summer spray because better control of red scale and whitefly is obtained in July.

Any delay, however, may make an extra application for rust mite necessary. As a general practice, the summer spray should be timed to control the most important pest in each grove.

Rust Mite Control: Rust mite is more of a problem during the summer. This is because it reproduces very rapidly and attains its highest populations in July or August.

The most effective control program includes three important points: (1) use the correct amount of the right miticide, (2) time all applications to keep rust mite populations at low levels, and (3) apply all dusts and sprays thoroughly.

Such a program will produce excellent summer control of rust mite only if all points are employed. Control may well be an expensive disappointment if any part of the program is omitted.

In that it is capable of longer control than other materials, zineb is the most effective rust mite miticide. But it is not satisfactory as a clean-up spray against high populations.

Zineb is not a fumigant and kills only when in contact with the mites. Since rust mites do not move far and destroy themselves by contacting residues, complete coverage of all leaf, fruit and twig surfaces is required.

Even thorough applications do not cover all of the fruit surface in all parts of the tree and mites in uncovered areas are left unharmed to quickly multiply to injurious numbers. The only way to get the most out of zineb is to spray before rust mites become numerous on leaves, and before they infest the fruit.

Rust mite is expected to recover from the effects of the post-bloom spray somewhat earlier than in 1960, especially in groves sprayed in March.

Consequently, if zineb is to be applied before rust mite infests the fruit, the summer spray will have to be applied in early June in many groves. However, those who plan to use oil against greasy spot or scale insects may desire to delay the application because of dry weather or to cover the summer flush.

If the zineb-oil must be delayed as much as two weeks after rust mites are found on the fruit or on 20% of the leaves, the grower should apply a supplemental sulfur spray or dust. This added application is important because enormous populations can develop in two weeks during June and July. After the sulfur is applied, an interval of at least three weeks should elapse before oil is used.

Scale and Mite Abundance by Districts at Mid-April 1961[1]

District	*Rust Mite*	*Citrus Red Mite*	*Texas Citrus Mite*	*Red Scale*	*Purple Scale*
West Coast	2.10*	1.00	.09	.64	1.00
Indian River	1.56*	.47	.67*	1.00*	1.10*
Upper East Coast	.29	1.13	.57	.75	.75
Gainesville	1.00	.33	.20	.17	.33
Orlando	1.05	.86	.27	.64	1.18*
Brooksville	1.69*	1.19	.62*	.24	1.00
Ridge	1.83*	.44	.35	.88*	1.24*
Bartow	2.38*	1.25*	.67*	1.00*	1.17*
State Average	1.53*	.80	.43	.71	1.07
Last Year	1.01	1.45	.29	.53	1.00

Abundance is computed from the number and intensity of infestations in groves not recently sprayed. Figures marked * indicate threatening conditions.

The standard dosage of zineb for rust mite control is 0.5 pound per 100 gallons. But where copper was used in the post-bloom spray, 1.0 pound is recommended.

Also 1.0 pound zineb is recommended in all sprays applied in June. This is because a longer interval of control is required of early applications if they are to hold until time for the fall mite spray.

Since its effectiveness is reduced by all copper compounds, zineb should not be used with copper in the summer spray. Chlorobenzilate is not affected by copper and may be used in place of zineb.

Chlorobenzilate, although of no value against greasy spot and slightly less effective than zineb against rust mite, usually gives a better clean-up than zineb. It may be used at 0.5 pound of powder or 0.5 pint of liquid concentrate per 100 gallon of spray and is compatible with oil and parathion as well as copper.

Scale Control: Even though scale infestations may be at a low level, a summer scalicide should be applied to prevent any increase in scale and whitefly populations. Tangerines, Temples, early varieties of oranges and grapefruit should be sprayed with a scalicide in June to prevent infestations of chaff and purple scale on fruit so it will be free of green spots when it is picked.

This spray may be timed for rust mite. However, the application can be delayed if a post-bloom scalicide was used and this procedure may be desirable where red scale is a problem.

July sprays are more effective against red scale. Any delay, however, may necessitate an extra spray to control rust mite.

Oil emulsion at 1.3% actual oil is effective and will also control purple mite, reduce greasy spot and remove some of the sooty mold.

Like most other insecticides, oil has disadvantages. It depresses the soluble solids in the juice and the later it is applied (August and September), the more likely it is to affect solids. A late summer oil may also retard degreening.

If oil is applied on tangerines, it should not exceed 1% actual oil and

(Continued on Page 16)

[1]Written April 24, 1961. Reports of surveys by Harold Holtsberg, Fort Pierce; J. W. Davis, Tavares; K. G. Townsend, Tampa; T. B. Hallam, Avon Park; and L. B. Anderson, Jr., Lake Alfred.

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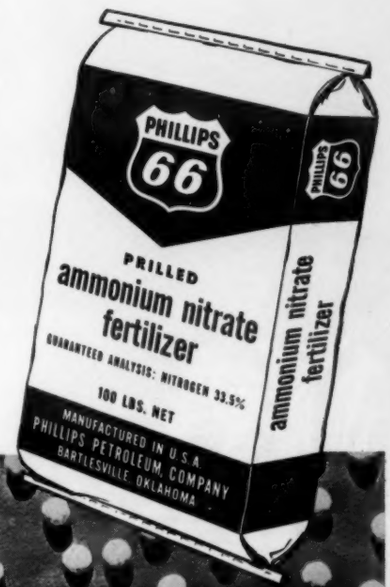

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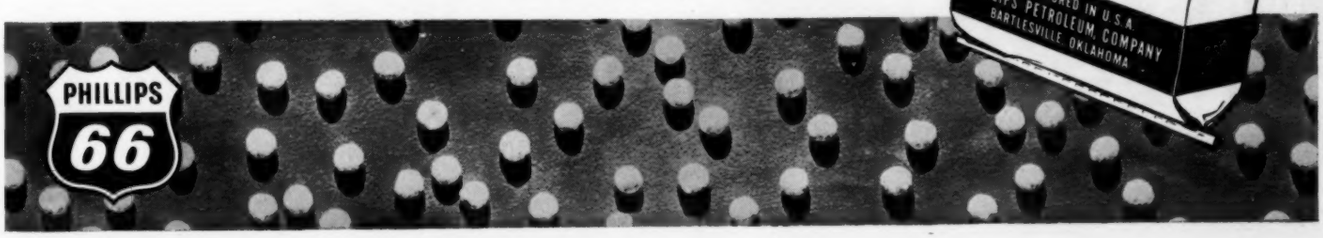

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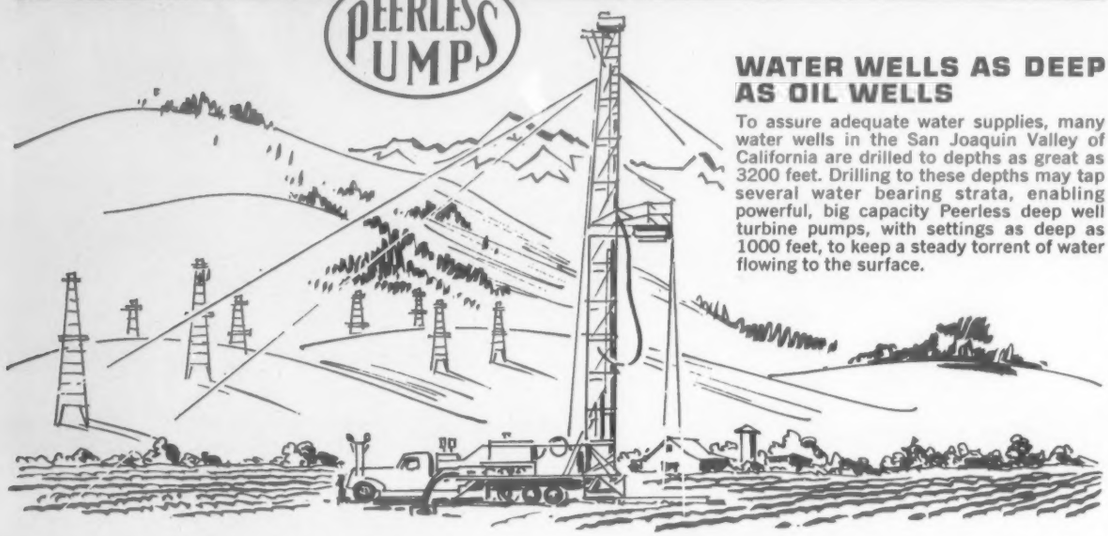

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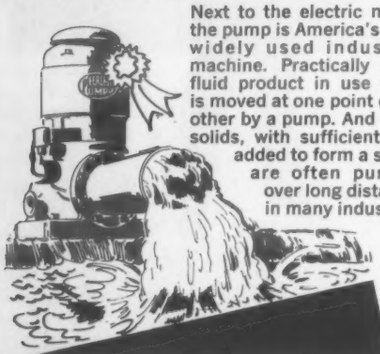

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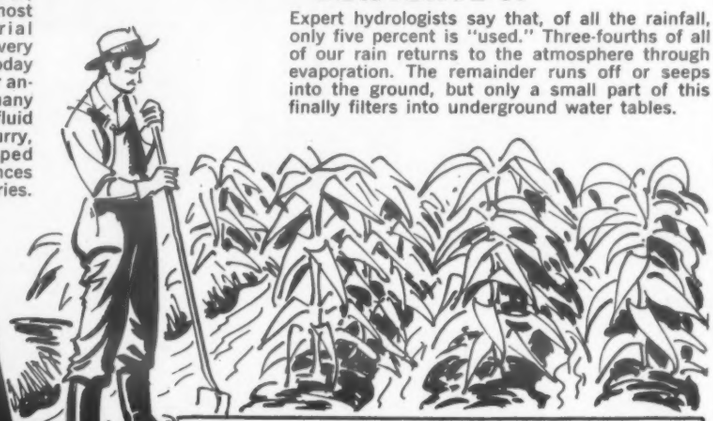

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Grapefruit Situation

(Continued from Page 7)

and finding out what a fine and tasty food it is.

Undoubtedly, many of these housewives will carry this memory of something good into next season and will be buying more Florida grapefruit than they might otherwise.

Texas, of course, has played a part in adding to Florida's trouble in disposing of its grapefruit. Almost completely wiped out a few years back by cold weather, Texas is beginning once more to be an important factor as a source of grapefruit in some markets which Florida has been supplying.

Both grapefruit and orange growers are wondering what next season has in store for them. However, the grapefruit producers are much more concerned than their orange-growing brothers.

Most experienced industry men foresee a total Florida citrus crop of approximately 150 million boxes next season. This would be 20% more than the current production, estimated at just over 125 million boxes.

One feature which gives the situation a different look, when viewed objectively, is the fact that there are comparatively few growers in Florida who produce nothing but grapefruit.

By and large, most have oranges as well – and possibly tangerines. So the excellent prices which oranges have been bringing have softened the blow resulting from the much lower grapefruit prices.

For those in the upper income bracket, it has meant less money to be paid to Uncle Sam and in many instances hasn't worried the grower too much.

* * *

In dollar value to producers, Florida's top five agricultural commodities are citrus, vegetables, meat animals, dairy products, and poultry-eggs.

* * *

"I believe you'd do anything to get out of helping with the plowing."

Citrus Institute Program Set

INFORMATION-PACKED is the program set for the 8th annual South Florida Citrus Institute to be held May 30-31 at Camp Cloverleaf.

Up-to-the minute research reports will be presented by 18 specialists. Thirteen of these speakers, incidentally, are attached to the Lake Alfred Experiment Station.

Emphasis will be placed on sprayers and spray equipment in this year's machinery show. However, dealers have been invited to display any and all other machinery that is suited to a citrus operation.

Dale S. Harrison, assistant Extension agricultural engineer, will be in charge of the machinery demonstration. It is scheduled for Tuesday afternoon, May 30th.

Tuesday program topics and speakers are as follows:

'Prospects for Improving Grapefruit Quality" – Dr. H. J. Reitz, horticulturist-in-charge, Citrus Experiment Station, Lake Alfred.

"Hedging and Pruning Research" – Dr. Dale Kretchman, assistant horticulturist, Lake Alfred.

"Review of the Mechanical Picker Situation"– G. E. Coppock, associate agricultural engineer, Lake Alfred.

"Another Look at Tristeza" – Dr. W. C. Price, virologist, Lake Alfred.

"Biological Control of Red Scale" – Dr. M. H. Muma, entomologist, Lake Alfred.

"More about Mites and Miticides" – Dr. R. B. Johnson, associate entomologist, Lake Alfred.

"Results with Different Kinds of Oils" – W. L. Thompson, entomologist, Lake Alfred.

"Use of Chemical Herbicides in Florida Citrus" – Jack T. McCown, assistant citriculturist, Florida Agricultural Extension Service.

Wednesday's program will feature talks by 10 more speakers. They will discuss the following topics:

"Fruit Setting Problems in Citrus" – Dr. A. H. Krezdorn, head of the Fruit Crops Department, University of Florida.

"Cold Injury Studies of 1960-61" – Dr. C. H. Hendershott, assistant plant physiologist, Florida Citrus Commission.

"What's the Value of a Good Citrus Tree; When Is It Not Worth Its Keep?" – Zach Savage, agricultural economist, University of Florida.

"Preparing Old Soils for Replanting" – Dr. C. I. Hannon, assistant nematologist, Lake Alfred.

"Investigations of Radiation, Sterilization, and Chemical Sterilants as Possible Means of Controlling Insects and Mites" – Dr. A. K. Burditt Jr., entomologist - in - charge, Citrus Insects Investigations, USDA -ARS, Orlando.

"Difficulties Encountered in Planting Flatwoods Soils" – Dr. H. W. Ford, associate horticulturist, Lake Alfred.

"How Nematodes Get Around" – Dr. W. G. Cowperthwaite, Division of Plant Industry, State Department of Agriculture.

"Progress Report on DBCP and Other Chemicals for Treatment of Spreading Decline Affected Trees" – Dr. R. F. Suit, plant pathologist, Lake Alfred.

"The Cause and Control of Foot Rot" – Dr. Gordon R. Grimm, plant pathologist, Lake Alfred.

"Nitrogen Sources and Citrus Yields" – Dr. Ivan Stewart, associate biochemist, Lake Alfred.

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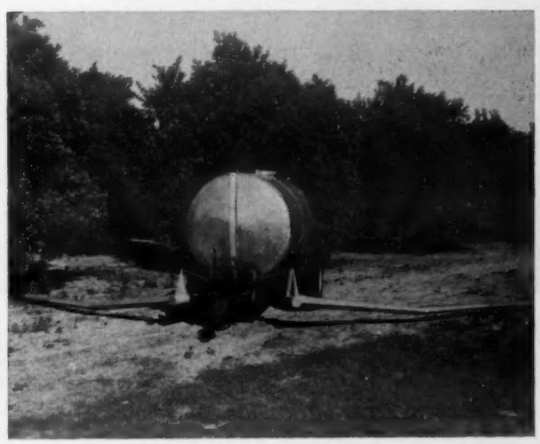

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Citrus Pest Control

(Continued from Page 12)

should be applied before July 15. Either parathion or malathion is preferred on tangerines because a higher grade of fruit usually is produced with these materials than with oil.

Oil should not be applied during dry weather or to weak trees because it may produce a leaf drop and dead wood.

Parathion at .25 pound of active ingredient per 100 gallon is an effective scalicide. It does not affect soluble solids or color and can be applied anytime during the summer.

Where color is important, parathion is especially recommended. Parathion does not control purple mite or greasy spot.

A mixture of .15 pound of actual parathion per 100 gallon plus 0.5 to 0.7% oil is a very effective scalicide, will not affect color as much as 1.3% oil, and will aid in greasy spot and purple mite control.

However, a mixture of oil and parathion may cause a leaf drop if applied during dry weather. If parathion is used, follow precautions on the label.

Malathion at 0.75 to 1.25 pound of active ingredient per 100 gallon is also an effective scalicide. Use the lesser dosage for light infestations; the higher dosage for heavy infestations.

An effective mixture for light infestations is 0.5 pound of actual malathion plus 0.5% oil. For heavy infestations, use 0.75 pound of malathion plus 0.7% oil.

There has been less leaf drop with the oil-malathion combination than with parathion mixed with oil. Malathion is much less hazardous to use than parathion, but is more expensive.

For mealybug control, spray with either parathion or malathion at the dosage used for scale.

Whitefly Control: The insecticides that control scale will also control whitefly. Timing of the spray and coverage of the under surface of the leaves are the most important factors in whitefly control.

The summer brood of whitefly adults usually emerges in June. Consequently, the scalicide spray should be delayed until after the adults have deposited eggs.

There will be much less sooty mold next fall if whitefly is controlled this summer.

Greasy Spot Control: Summer treatment for greasy spot control will depend upon the post-bloom treatment. If a post-bloom copper was applied, summer oil plus zineb should control greasy spot.

However, if parathion or malathion is used as the summer scalicide, add about 0.3 pound of metallic copper in the form of neutral copper per 100 gallon and substitute Chlorobenzilate for zineb.

If no copper was used in the post-bloom spray, the amount in the summer spray should be increased to 0.5 pound of metallic copper. This higher amount of copper may enlarge melanose lesions causing star melanose, and should not be used on oranges grown for the fresh fruit market.

As mentioned under *Rust Mite Control*, do not combine copper with zineb.

The best time of application for greasy spot control has not been determined, but the spray should be applied within four to six weeks after the last flush of growth.

Red Spider Control: Citrus red mite is rarely a problem in the late summer unless sulfur or copper compounds are included in the summer spray. Furthermore, oil emulsions usually give adequate control of both citrus red mite and Texas citrus mite.

However, if red spiders do become a problem before fall, good results may be obtained with Ethion, Trithion or Kelthane.

Consult the *1961 Better Fruit Program* for further details concerning dosage, compatibility of mixtures, precautions and regulations covering the use of pesticides.

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Peel and section a Sul-Po-Mag grown orange. You can see, test and taste the improved quality Sul-Po-Mag adds to your grove's "diet."

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For the farmer's bookshelf:

New Publications of Interest

LISTED below are 13 new publications which are free to Florida farmers, ranchers, and citrus growers.

Four of the publications concern beef cattle research findings. Three of the booklets describe new peaches developed for Florida.

Also available is the Florida Agricultural Experiment Station's annual report for 1960.

When writing for any of these publications, please cite the bulletin or circular number and name. Address all requests to:

Mail Room, Rolfs Hall, Agricultural Experiment Station, University of Florida, Gainesville.

Beef cattle research findings are summarized in the following publications:

Value of Pangola Hay and Silage in Steer Fattening Rations (B. 621) reports that steers full-fed hay and concentrates (citrus pulp and citrus molasses) made satisfactory gains. Feeding either pangola hay or silage free choice was not satisfactory.

Factors Influencing Pregnancy Rate in Florida Beef Cattle (B. 623) offers seven suggestions for increasing the low rate of reproduction in Florida beef cattle.

Genetic and Environmental Influences on Weaning Weight and Slaughter Grade of Brahman, Shorthorn and Brahman-Shorthorn Crossbred Calves (B. 624). This technical report reveals that pastures, (better some years than others), sex, age of dams, and breeding all exerted influence on the weaning weight and slaughter grade of calves.

Diethylstilbestrol and Aureomycin for Fattening Beef Cattle (B. 627) reveals that combinations of antibiotics and stilbestrol give better gains than either alone; caution is advised.

Presented in publication C. S-124 are *Climatological Records at Range Cattle Experiment Station, 1942-1958.*

Other publications are as follows:

Citrus Vinegar (B. 622) reports excellent vinegars have been made from citrus but are not, as yet, competitive with apple cider vinegars.

The Consumer Market for Florida Avocados (B. 625) says use patterns vary widely and market promotion is needed.

Retail Distribution and Merchandising of Fresh Limes and Frozen Limeade Concentrate (B. 626) reveals several important points that may be useful in formularizing improved market practices and policies.

Described in *Floratine St. Augustine grass* (C. S-123) is a new variety of ornamental turfgrass developed by the Experiment Station.

Florad Oats (C. S-128) tells of a new variety oat that is very early and has high test weight.

The publications on peaches are: *Flordahome* (C. S-125), a new, double pink ornamental peach; *Flordawon* (C. S-126), a peach for central Florida, and *Flordaqueen* (C. S-127), a new peach for north Florida.

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TABLE I.

Average Pounds of Dry Matter Produced Per Acre by Ronphagrass and Several Varieties of Cereal Grains During the Winter of 1959-60 at Gainesville, Florida.

Grass Variety and Species	Pounds Dry Matter per Acre							
	1st Cutting 12/9/59	2nd Cutting 1/6/60	3rd Cutting 2/1/60	4th Cutting 2/29/60	5th Cutting 3/28/60	6th Cutting 4/15/60	7th Cutting 5/2/60	Total Seasonal Yield
Ronphagrass	5	132	339	491	352	480	517	2316
Surgrain Oats	78	315	396	418	689	951	95	2942
Gator Rye	14	337	634	700	806	313	44	2848
Floriland Oats	70	374	429	612	854	399	27	2765
Abruzzi Rye	34	502	617	674	672	216	33	2748
Fla. Black Rye	41	493	462	638	707	308	34	2683
Seminole Oats	95	377	238	359	597	429	62	2157
Bledsoe Wheat	35	392	289	385	421	191	24	1737
Coastal Wheat	22	249	211	271	344	136	24	1257

TABLE II.

Average Composition of the Fresh Green Forage of Ronphagrass and Cereal Grains. (Wet Basis)

Forage Species	% Total Dry Matter	% Crude Protein	% Fat	% Fiber	% Mineral Matter	% Ca	% Phos
Ronphagrass	19.0	4.6	.57	3.5	2.69	.085	.093
Oats	13.5	4.0	.6*	2.8*	2.0*	.06*	.09*
Rye	14.9	4.7	.9*	3.5*	2.5*	.13*	.10*
Wheat	15.1	4.7	.8*	3.9*	2.8*	.09*	.08*

*Values taken from:
Morrison, F. B. Feeds and Feeding. 21st Edition
Table I, p. 1098-1108. The Morrison Publishing Co.,
Ithaca, New York. 1948.

Ronphagrass Research

(Continued from Page 11)

ronphagrass. All of the sheep lost weight in the feeding experiment.

When the first lot of sheep (those on one week of ronphagrass feeding for adjustment and one week of feeding on experiment) was removed, the animals showed signs of mild diarrhea. There were no serious effects, though.

One of the sheep remaining on ronphagrass, however, became extremely nervous and excitable 17 days after initial feeding of the grass. By the 19th day, abnormal coordination and several other symptoms were obvious. Similar symptoms developed in a second sheep the following day.

Normal diets were fed these sheep after they had been on ronphagrass 21 days. Following almost two months of normal diet, there was no sign of improvement in the condition of these sheep.

Phalaris staggers, a condition which occurred in sheep grazing on large canarygrass pastures in Australia, has been reported in the literature. *Ronpha staggers,* a condition with similar external symptoms, has been reported in South Africa.

According to these reports, this condition is caused by a toxic substance in the grass. If adequate supplies of cobalt are not available, this toxic substance affects the central nervous system.

Ruminant animals – like cattle

(Continued on Page 22)

TABLE III.

Average Percentage of the Total Weight of Forage Consumed by Beef Animals

Forage Variety and Species	Per Cent of Forage Consumed
Bledsoe Wheat	100.0
Coastal Wheat	100.0
Seminole Oats	95.2
Floriland Oats	83.2
Shurgrain Oats	61.1
Abruzzi Rye	41.1
Florida Black Rye	34.9
Gator Rye	32.7
Ronphagrass	9.2

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Ad Program to Spotlight Processed Citrus Products

PROCESSED citrus products will be spotlighted in the Florida Citrus Commission's summer advertising program.

The consumer campaign will cover July, August, September and October, a period when very little fresh citrus is available. The ad program will cost some $350,000.

By June 30, a little more than $3 million will have been spent for the eight months ending on that date. The commission's overall budget is smaller than that of last season, due to fruit destroyed by Hurricane Donna last fall.

Most of the summer program funds — $200,000 — will promote frozen orange concentrate. Other products to be advertised are canned grapefruit sections, canned single-strength orange juice, and grapefruit juice.

Life magazine will carry three color ads. One color ad will be placed in both *This Week* and *Parade*.

In addition, two insertions are scheduled in 42 metropolitan newspapers. Some of these newspaper ads will be in color.

Strong merchandising support will be given the advertising campaign by the commission's 60-man field staff, general manager Homer E. Hooks and Frank D. Arn, director of advertising and merchandising director, emphasized.

The campaign was prepared by the commission's staff and Benton & Bowles, Inc., the commission's advertising agency.

Planning For Next Year Yet?

Maybe it seems to you that it's a bit early to start planning for 1962, when the 1961 planting season has not yet come to an end. However, many of our customers are already placing their orders for 1962. If there is a possibility you might plant a grove next Fall or next Spring, why not give us a ring and talk over your plans with our representative. Thre'll be no obligation on your part if you decide not to plant. And if you do—well, you'll be getting off to a good start, with plenty of time for a well-thought-out decision.

And speaking of planning for next year, we're doing just that ourselves right now. As you can see by the picture above, we cleared and staked our new nursery and are now lining it out with seedlings. If you've never seen a nursery operation, come to see us. We'll be glad to show you around.

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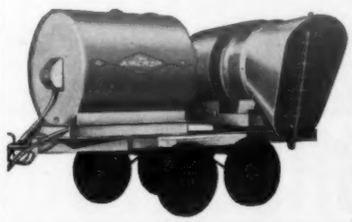
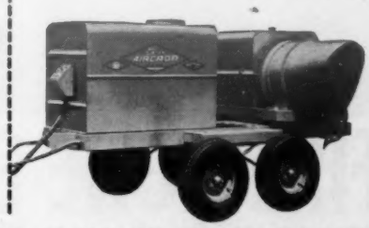


Model 30-RC AIRCROP covers up to 165 acres per day



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New Race of Wilt *(Continued from Page 10)*

ture of the modern tomato variety for Florida cannot be manipulated with such assurance.

This definitely important but intangible feature is called "quality." Some of its signs or expressions, such as "firmness" and "sheen," are recognizable – part of the time.

One talks of quality in tomato fruits without knowing how to measure it objectively, without even knowing how to describe it. Almost surely it is a composite of many unknowns.

In essence, with reference to tomatoes, "quality" means that they are attractive to the eye and pleasing to the palate. In the latter respect, Manalucie is clearly outstanding among present-day varieties; this is the reason it has quickly become the standard of the vine-ripened phase of the industry.

This is nothing on record to date, however, to give any assurance that breeding can produce a substitute variety which will have resistance to the new strain of fusarium wilt plus the quality of Manalucie.

Of course, the effort will be made with this objective in mind. Yet if it is completely successful in the next five years, it will be . . . insofar as the superior palatability is concerned . . . a matter of luck rather than science.

From this viewpoint, nullification of the utility of a variety such as Manalucie to Florida tomato growers, by the development and spread of the new strain of fusarium, becomes reason for grave concern.

To the writer, the latter cliche expresses proper perspective on the problem at present.

' ' '

Guide for Growers

UP-TO-DATE and illustrated is the 1961 edition of the popular "Commercial Growers Guide" published by Seed Research Specialists, Inc.

This year's edition has been expanded to include varietal descriptions, planting instructions, growing habits, maturity schedules, and recommended use of all available vegetable varieties.

Other information pertains to insect and disease control and to soil deficiency problems. There is also a detailed planting chart.

Copies of this booklet are available direct from SRS representatives. They may also be obtained by writing to Seed Research Specialists, Inc., at P. O. Box 3091, Modesto, California.

' ' '

Florida's pulpwood production during 1960 reached 2 million cords.

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You'll also like exclusive Firestone Rubber-XF, new extra-long-wearing tread rubber. You'll like Firestone's Flex-Fortified sidewalls for their protection against cracks and breaks. You'll like the deeper bite and self-cleaning action of Firestone Powerized traction bars. And you'll like Firestone's quick, complete on-the-farm service—the *only* such service that loans you *brand-new* tractor tires to use when yours go in for retreading or repairs! Buy farm-proved Firestones now . . . at your Firestone Dealer, Store or service station. Always a year to pay.

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C. F. Bishop (right) of Reynolds Plantation in Glendora, Miss., says: "*Firestones are our best bet in this sandy loam soil. Can't bog them down—in fact they run cleaner than any tires I know. Jim Blausett of Firestone (left) is always on hand with great service, too.*"

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CELLOPHANE OVERWRAP shown above was adopted as a quick identification for a quality product.

Eggs with 'Buy' Appeal

By THOMAS J. HUGHES

CELLOPHANE CARTON OVERWRAPPING, the first major change in egg packaging in 30 years, appears to hold promise for everyone. Quality producers see it as a vehicle they can ride to greater volume and fair prices. Insofar as retailers are concerned, overwrap is a tremendous sales stimulus. And it means a better egg for the homemaker.

Actually, the first commercial overwrapping began just one year ago. Numerous reports in recent months, however, indicate that producers and retailers are equally enthusiastic about the packaging.

Virtually all individuals have found that egg sales can be increased by better packaging. Several producers have found that the new technique not only boosts sales but also reduces labor and other expenses considerably.

Louisiana Agricultural Experiment Station tests at Shreveport have proved that housewives prefer the cellophane overwrapped carton over the standard carton. When selling at the same price, the cellophane accounted for 55% of total sales in the stores studied.

Extra "eye" appeal and better keeping qualities are two of the advantages attributed to overwrapped cartons. Too, eggs packed in air-tight containers don't pick up undesirable odors.

Overwrap combined with the fresh fancy program, according to one Dallas egg dealer, gave him a 100% increase in volume. The Texan also reckons that handling of cellophane overwrapped cartons has made his in-plant operations 10% more efficient, brought in 10% more new business, and reduced rehandling by 99%.

To determine what the new program would do for freshness, this dealer overwrapped his standard fresh fancy eggs and put them in his cooler (45°F.). Fifty-three days later, he asked his USDA inspector to break out all the eggs.

"Many were still double A's (AA)," relates Grover Peden, manager of Feathercrest Egg Company, "and the remainder were *all* high grade A."

Jack Denny, manager of a large egg operation in Houston, says the overwrap gives him something to sell, something to talk about. He points out:

"Every peddler could talk about eggs. But I was the only one who could talk *and deliver* eggs with freshness and flavor protected by cellophane."

Denny also claims the new wrap cuts handling costs per dozen eggs in half. Less breakage and no leakers have meant considerable savings on maintenance for him.

"Sales figures speak for themselves," asserts C. P. Evans, president of a large Texas chain. Citing a 35% egg sales increase, he avers "the eggs just have more 'buy' appeal."

Evans adds that the overwrap has virtually eliminated pilferage. His egg case maintenance consists of merely keeping the eggs stocked and cleaning the customer's side of the glass.

One of the best endorsements of the new packaging technique has been the endorsement of the overwrap by the Dallas District of 7-Eleven Stores, given after a thorough test in 70 outlets of the chain's Houston district.

Vice president Kay Lance reports that the cellophane has given 7-Eleven stores in Dallas a 12% sales increase plus repeat customers. It has also lengthened the life of cartons in wet frost boxes subject to the Gulf Coast's humidity.

Foster Egg Company, supplier of the chain's Dallas district, reveals that previously the breakage loss averaged one carton per case. This meant the loss of that carton and rehandling other cartons soiled by the leakers. Since the new packaging, breakage has been near zero and no rehandling.

Premium prices for eggs in cellophane overwrapped cartons have been reported in such widely diverse states as Texas, Ohio, West Virginia, and New Jersey.

A poultryman in Medina, Ohio reaps an eight-cent premium for top grade eggs overwrapped in cellophane. And he gets this premium in chain stores which carry eggs in every grade and price range.

In Virginia, a market manager receives an extra 10 cents per dozen over competing eggs. The fancy overwrapped eggs account for 35% of the egg volume in stores at the extra cost.

Market tests were made with clear plastic cartons and cellophane overwrapped cartons side by side. The plastic cartons were at premiums of four and of seven cents.

Five tests were made using plastic cartons, but at no time did they account for more than 25% of the sales. Researchers concluded that if plastic cartons were to be used, the higher price might just as well be charged because the per cent of sales remained the same, regardless of mark-up.

Product identification is the reason James Produce Company of Charleston, West Virginia uses overwrap. E. L. James, vice president of the National Poultry, Egg and Butter Association, explains:

"We had reason to think we had a premium egg with an established reputation in our market but we felt that the cellophane overwrap, in addition to giving us merchandisable protective features, would give us identification. We thought the shopper would say 'the James egg' is the one in the cellophane."

Here's how C. H. James II, firm sales manager, says the overwrap has worked for them:

"Egg sales are holding much steadier, at top prices, since we started overwrapping. There are less ups and downs. We are up a good many cases and . . . we are staying up."

Another advantage of the new packaging is that added "eye" appeal can be obtained by printing seasonal messages or greetings on the overwrap.

Those in the egg marketing business may well benefit by taking a page out of the book of cereal manufacturers and others who have multiplied sales many fold by dressing up their product with eye appeal.

You can't buy a package of beans anymore that isn't packaged in a fancy bag that contains color and printed instructions on cooking and serving. And, in many cases, something on the essential food nutrients therein.

Many producers, however, still put their eggs in plain cartons. But some Johnnys-come-lately are wising up and capitalizing on packaging their eggs.

BRANDENBURG
Hatchery
Phone 81-2461
Dunedin, Florida
DEKALB CHIX
DEKALB—the NEW Type Chix that's taking the Country by Storm.

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KimberCHIKS
are noted for:
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84 Haugh Units at 32 weeks of age
PRODUCTION
245 - 280 EGGS
(hen day rate)
to 18 months of age
EGG SIZE - LARGE
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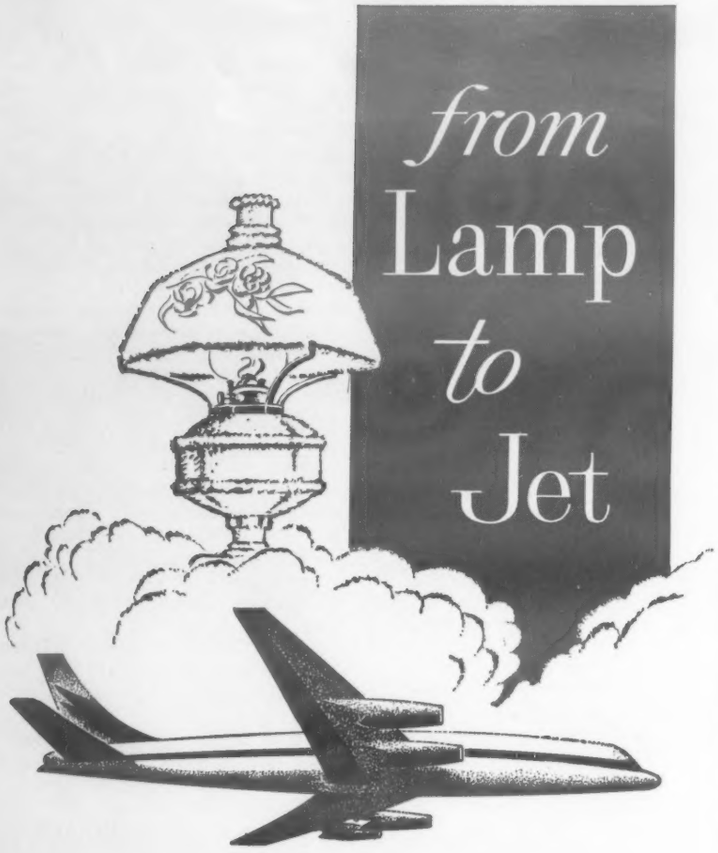

The great growth of the South in the 75 years we have been serving you is typified by the changes in use for *kerosene*.

When we began operations in 1886, "Fireproof Kersene" was our major product. Delivered by horsedrawn wagons to every part of the South, it kept lamps and stoves burning in hundreds of thousands of Southern homes. Today the lamp has almost disappeared, but our sales of kerosene have increased tenfold—now powering the jets which dot the sky above Dixie.

On our 75th Anniversary we wish to thank the three generations of customers whose confidence in our products has enabled these products to continue to enjoy sales leadership.

STANDARD OIL COMPANY (KENTUCKY)

Ronphagrass Research

(Continued from Page 18)

and sheep – need a regular supply of cobalt to be able to manufacture Vitamin B_{12}. Supplying cobalt orally, or applying it to the soil which produces the ronphagrass, has been effective in preventing this toxicity.

An unusually high nitrate content was found in ronphagrass. It is possible that the toxicity in the sheep experiment may have been caused by nitrogen-containing compounds. Consequently, a thorough investigation of ronphagrass for pasture is now in progress at the University of Florida.

The "wonder grass" which will supply fresh green forage the year around in Florida still has not been discovered. But the search for better grasses continues.

By painstaking and exhausting research, workers are endeavoring to develop new and better grasses for Florida.

Once discovered, these grasses can not be immediately released and recommended. They must first be thoroughly tried and tested . . . to make sure they *are* superior and that severe losses will not occur to Florida ranchers.

(AUTHOR'S NOTE: Acknowledgement is made of the assistance of Agronomy students enrolled in special problems, Agronomy research personnel, and members of the Department of Animal Husbandry and Nutrition for their help in carrying out the investigations reported in the foregoing article.)

Shorter Gestation for Dairy Cattle Is Studied

Dairy researchers at the University of Illinois believe it is possible to shorten a cow's gestation period.

Gestation length is hereditary. And with proper selection, continue the specialists, it might be cut by more than three days in one generation.

It'll take more research to see how much time can be cut in three or four generations . . . and if any harmful effects would follow.

? How smart are YOU? ?

(Answers to Questions on Page 2)

1. *The mountain top which extends in a long line.*
2. *A fetching etching.*
3. *With maritime law.*
4. *From France, as part of the Louisiana Purchase.*
5. *An extravagant, incredible story.*
6. *The estival season (summer) begins on June 21st.*
7. *Margaret Mitchell ("Gone with the Wind")*
8. *During his first year.*
9. *Real; that was the nickname of George Bryan Brummel.*
10. *On the west coast.*

PEST-FREE

WITH HARDIE

Cattle, to be pest free should be sprayed, and the unit that can do the best job in dispensing your spray materials is Hardie . . . Hardie has everything you need . . . Reliable time tested hi-pressure spray guns . . . hose . . . the Dependable Hardie engine-powered trailer, with the famous Hardie hi-pressure pump, and with either the lifetime wooden tank or steel tank . . . Write today . . .

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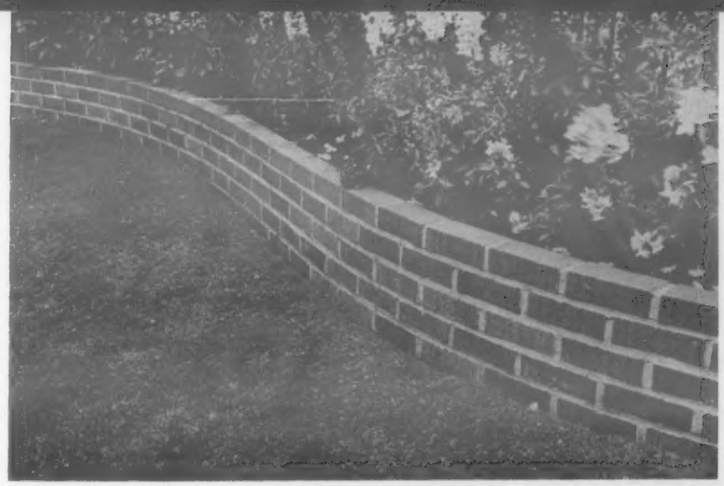
YARD & GARDEN

By Marguerite Schwaen



THOMAS JEFFERSON'S beloved serpentine wall sets off lush green grass and colorful planting.

May is the last dry month of Florida's spring. Soon the fine, new growth put on last month will stop wilting in the noon-day sun, for the rainy season is just ahead. So now's the time to refurbish the lawn and give grass the attention it is sure to need. Since a long growing season with ample water supplies is on its way, this month and the next are the best of all times to set out sprigs.

The green of our grass has become a status symbol, for a beautifully kept lawn is a symbol of a fine home. To achieve that happy combination, we can turn to the new grasses, insecticides, and fertilizers available.

Floratine grass is a recently-developed St. Augustine variety for Florida home lawns. It was produced for its texture, density, rate of growth, vigor, weed and frost resistance, and adaptability. Blue-green in color, it grows snug to the ground and may be mowed more closely than other St. Augustine varieties.

Grass texture is important to perfectionists. For those who like the velvet effect, emerald zoysia and the fine, new Bermuda varieties are eminently suitable. Bermuda has a particular greeness and feathery texture which are beautiful. Both zoysia and Bermuda are high maintenance plantings, requiring great amounts of water.

St. Augustine varieties are the safest bet for most Florida homes, even though chinch bug control is essential. Researchers are constantly producing new wonder insecticides to deal with the bugs which become resistant to old sprays.

Ethion, a chemical compound sold under a number of different brand names, is available now for chinch bug control. The method of application varies from brand to brand but all are effective when package directions are followed. Florida Agricultural Experiment Station experts say VC 13, trithion, diazinon, and ronnel will all kill the bugs if used properly.

Basically, the system is to wet the lawn thoroughly before the chemical is applied so that it can penetrate the mat of turf and get to the grass roots where the bugs feed and lay their eggs.

There are so many good fertilizers for grass that no one can say which is the best. On the whole, good gardeners prefer organic lawn fertilizer with urea as a nitrogen source. This nitrogen is released slowly over a long period of time and involves little risk of burning the grass.

Living in Florida

By BARBARA CLENDINEN

Before this issue rolls off the presses, I'll be in the nation's capitol, adjusting my new spring bonnet for a visit to the White House and a cup of tea with the First Lady.

Admonitions from friends have been many and varied. I must be sure to wear my skirts 18 inches from the ground and have a Jackie hair-cut. I must buy a pillbox and study up on my high school French. I must wear a straight, little overblouse suit and show a passing familiarity with existentialism, the 18th century poets and the ballet.

After considering all and each of these suggestions, I have decided a bit wilfully to follow none of them. The fashions worn with such flair by Mrs. Kennedy do little for those of us who (shall I carefully say?) preceded her onto this planet. And the timing of the average receiving line seldom accommodates any bon mots worth recording.

However, I shall arrive early, stay as long as protocol permits and report to you in detail next month.

* * *

Beachwear is big news this month, as May's bright sun warms gulf and lake waters and private pools are flower-flecked with the bright caps of the neighbors.

Bikinis are still good but conventional two piece suits are even better. They bare the midriff to the sun yet offer a comfortable extension of yardage elsewhere.

One piece swim sheaths with shirred or draped fronts are marvelously becoming to the slender figure. A new comer which is kinder to most of us is a swimming culotte which looks like a short skirt. The bloomer suit has almost disappeared from the scene but there are demure versions for the very young.

An old favorite with a new look is the one-piece maillot. These tight fitting suits, popular with active swimmers, take a plunge to the waistline in the back. Wet or dry, in repose or action, they keep their shape and display the wearer's well.

Non-swimmers can sun and relax in knee-length dresses sashed at the waist, and wading shorts and jackets. Chinese necklines and side vents at hem lines give both an Oriental look.

Ponchos, loose-fitting tunics and tent-like covers go over swim suits to provide protection from too much sun.

A tip for a tranquil summer: Check tags on all beach wear for fiber content and the care each requires. Then *follow directions* so that your handsome new suits and sun clothes will stay that way.

ANGEL FOOD CAKE has only 122 calories a slice au natural; 207 calories glazed.

Pare Pounds Subtly

By LORA A. KISER

Any weight watchers in your family. If so and they're as fond of fattening food as most of us, they need all the moral support they can get. You, the cook, can be a wonderful help by planning and preparing meals that cut calories yet emphasize flavor.

For example, you can use non-fat, dry milk solids for cooking. Reconstituted dry milk solids, heated and combined with vegetable liquors, are good in soups. Whenever possible, prepare food without added fat, sugar, or flour. Tempt appetites with herbs and spices instead of rich seasonings, sauces, and gravies.

Roast or broil meats, poultry, and fish instead of frying them in fat. Avoid breading and using egg batters on chops, chickens, and cutlets. And don't forget to trim extra fat from the meat.

Serve green or vegetable salads without dressing – or use low-calorie

(Continued on Page 24)

Pare Pounds Subtly *(Continued from Page 23)*

salad dressings made with tomato juice, herbs, and lemon juice or vinegar. For nibbling or as appetizers, serve low-calorie items. Try celery, cabbage wedges, carrot sticks, or other low-calorie vegetables or fruit.

Keep desserts simple, too. Serve fresh fruits or canned and frozen fruits that are packed in water or juice — not syrup.

Avoid high fat foods such as cream, butter, gravies, sauces, nuts, potato chips, oil, pastries, rich salad dressing; sweet foods such as cakes, cookies, rich puddings, candies, fountain drinks and sundaes, carbonated drinks; and starchy foods such as macaroni, dry peas, and beans.

By simple elimination of high calorie foods, an appetizing reducing diet can be planned around the regular family menu. Here's a sample menu which shows how calories can be trimmed magically from a dinner for a person requiring 3,000 calories a day to serve one on a reducing diet of 1,200 daily calories.

High-Calorie Dinner

(Approximately 1,290 Calories)

Beef pot roast	3 ounces
Gravy	½ cup
Mashed potatoes	⅔ cup
Green peas, buttered	½ cup
Rolls	2 small
Butter or margarine	1 teaspoon
Fruit cup: Orange	½ small
Apple	½ medium
Banana	1 medium
Plain cookie	1 medium

To change this high-calorie dinner to one with approximately 450 (little over one-third) calories, omit the gravy, the butter on the peas, and the cookie. Substitute 1 slice whole wheat bread for rolls and use half the amount of mashed potatoes and butter.

Easy, isn't it? So, help the weight watcher at your house with balanced meals that pare pounds subtly.

* * *

BEST RECIPE of the MONTH

HUSBAND-KEEPING'S A CINCH with food like that served by this month's contest winners. Take the savory beef pot pie described by Mrs. George Miller of Mansfield, Ohio. Its rosy-gold crust hides such treasures of flavor that your man will think he's struck gold, for sure. Herbs and wine simmer cubes of round steak to mouthwatering tenderness. A surprise treat of artichoke hearts is added just before the rich brown mixture is topped with refrigerator biscuits, rolled in melted butter and shredded cheese.

What man in his right mind could fail to beam at such a table blessing? A blueberry cottage cake, which won our second prize, is perfect to climax this meal.

(A few days of these ambrosial delights and the family will *have* to follow Lora Kiser's dietary suggestions published in this issue.)

Here is Mrs. Miller's recipe for your clip file:

Beef Pot Pie

- 2 pounds round steak, cut in 1-inch cubes
- salt, pepper, and flour
- ¼ cup salad or olive oil
- 2 tablespoons butter
- 4 cloves, whole unpeeled garlic
- 1 pound mushrooms, cut in half
- 1 can (4-oz.) green chiles, minced
- ¼ teaspoon marjoram
- ½ teaspoon dill weed
- 1 cup consomme or red table wine
- 1 tablespoon wine vinegar
- 2 cooked artichoke hearts
- Parmesan crust

Salt and pepper meat; roll in flour. Combine oil and butter with garlic in large frying pan; brown meat. Set meat aside and discard garlic. Add mushrooms to pan; cover and simmer 7 minutes. Add chiles (hot green peppers bottled in vinegar).

Return meat to pan; add marjoram, dill weed, wine (or consomme) and vinegar; cover and simmer very slowly 1½ hours, stirring occasionally. Add artichokes.

Pour mixture into deep 2 to 2½ quart baking dish; top with Parmesan biscuits. Bake in hot oven (400°) 15 minutes or until biscuits are well browned. Serves 6.

Parmesan Biscuit Crust: Separate 1 package (8-oz.) refrigerator biscuits. Dip each biscuit in melted butter and roll in shredded Parmesan cheese. Place on top of meat and sprinkle lightly with dill weed.

* * *

Here's the delectable dessert which won second prize for Mrs. Eliza H. May of Colchester, Vermont.

Blueberry Cake

- 1½ cups sifted, all-purpose flour
- 2 teaspoons baking powder
- ¼ teaspoon salt
- 1 cup sugar
- 1 egg, well beaten
- 3 tablespoons melted butter or margarine
- 1 cup milk
- 1½ to 2 cups blueberries (fresh or unsweetened canned or frozen berries)
- 1 cup sugar
- 1 cup water

Mix and sift first four ingredients into bowl. Combine next four ingredients and add slowly to first, mixing well. Pour into shallow, well-greased baking pan. Cover thickly with berries.

Bring second cup of sugar and the water to a boil; pour over the berries. Bake at 375° 45 minutes or until cake tests done. (As cake bakes, the batter rises to top.)

Cool thoroughly, cut into squares. Serve with heaping teaspoon of honey on each square and pass a pitcher of thick, sweet cream, sweetened to taste, with a dash of nutmeg added.

Tell us your favorite peach dish for our July issue. We'll send you a $5 check if it's the most tantalizing recipe we get.

Write or print your recipe plainly; include your name, address, and telephone number. Mail before May 28 to:

Best Recipes Contest
FLORIDA GROWER & RANCHER
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Second prize is $2. Honorable mention wins a three-year subscription for yourself or a friend.

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* * *

SHORT CUTS

(We pay $1 for each Short Cut published.)

Protect the walls and siding of your house from ladder scratches by placing a canvas glove over each legtop of the ladder. *Mrs. H. J., Sarasota, Fla.*

* * *

Dish-washing hints: Before washing the butter dish, sprinkle it with salt; grease washes off immediately. After using your electric skillet you'll find that fried batter loosens immediately if you'll fill the skillet half full of water and let it simmer for a minute. *Mrs. M. J. Cabe, Jacksonville, Fla.*

* * *

Thirty minutes before broiling or frying a steak, wet your hands with plain cider vinegar and rub both sides of the steak. You'll find it juicier and more tender, with no trace of the vinegar flavor. Inexpensive cuts of meat benefit by this. *Mrs. E. P., Manchester, Ga.*

* * *

Make an interesting hanging flower pot this way: paint a soup ladle or dipper a brilliant color, using a hard enamel. Fill the shallow bowl with rich earth and plant an ivy or small vine in it. Hung from a wall bracket, it will add color and interest. *B. C., San Bernardino, Calif.*

* * *

Add a stalk of celery to cabbage or other strong vegetables when they are cooking. The celery won't affect the flavor but it will remove the odor. *Mrs. R. K., Bradenton.*

* * *

May Plentifuls

Delicious fresh Florida grapefruit and broilers will top the May plentiful foods list, according to the Food Distribution Division of the USDA's Agricultural Marketing Service.

Other plentiful foods for May will include cabbage, milk and dairy products, potatoes, turkeys, and canned freestone peaches.

SEWING CORNER

Sleek Sheath

Simple to sew is this chic summer sheath. With only two main pattern parts and no waist seams, it can be whipped up in a matter of hours. Too, you have your choice of three smart necklines.

Printed Pattern 9161: Misses' sizes 10, 12, 14, 16, and 18. Size 16 requires 3 yards 35-inch fabric.

Send 50 cents in coins for this pattern; add 10 cents for first-class mailing. Send to:

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Pattern Dept.
P. O. Box 42
Old Chelsea Station
New York 11, New York

Print plainly name, address with zone, size, and style number.

Pangola and Nematodes . *(Continued from Page 9)*

fallow and the fallow-plus-flooded treatments.

During the entire period of the tests, the nematode population remained at a low level in plots containing Coastal Bermudagrass. All other treatments maintained the nematode populations at moderate to severe levels.

These results (depicted in accompanying photos and charts) were based upon the amount of galling on the roots of cucumber indicator plants grown in samples of soils taken from each treatment at various intervals.

Since excellent results were found in the small chambers, a one-acre block was divided into nine equal plots. On these, three land management practices – pangolagrass; clean fallow; volunteer weeds and grasses – were established immediately following a crop of tomatoes.

One-half of each plot was planted to tomatoes two and one-half years later; the remaining half was planted the following spring. After tomato yields were determined, the tomato plants were removed from the soil in order to check their roots for nematode galls.

In this large-scale field trial, an average of 1.5% of the tomato plants growing in pangolagrass plots contained root-knot galls – compared to 8% in the clean fallow and 76.5% in the weed and grass plots.

Because of the rapid disappearance of high populations of root-knot nematodes from soils planted *(Continued on Page 27)*

Table 1
The Effect of CRUDE WATER EXTRACTS of Various Parts of Pangolagrass on the Galling of Cucumber Root-Knot Nematode-Infested Soils

Treatment	*Root-Knot Rating*[1]
Old root extract	0.2
Young root extract	3.4
Leaf extract	2.4
Stem extract	2.8
Check, distilled water	2.6

[1] Rating: 0 (no galling) to 5 (severe galling).

Save from $20 to $90 an acre...

Vegetable growers have reduced weeding costs from 80% to 90% with Monsanto's Vegadex®

Vegadex *kills weeds* while the vegetables grow. A single application of Vegadex before you plant kills weeds as they sprout! Your vegetables, such as celery, lettuce and cole crops, grow through unharmed, with few or no weeds to fight them for sunlight, water and plant food. And, Vegadex won't build up in your soil.

Vegadex practically eliminates costly hand-weeding. Last year, many vegetable growers saved from $20 to $90 an acre on labor costs by applying Vegadex at planting time.

You can get Vegadex in granules or liquid, so you can spray it or spread it, depending on the equipment you have. But either way you use it, annual grasses—and even some tough weeds like purslane and henbit—sprout and then die.

VEGADEX KILLS

purslane, henbit (blueweed), annual bluegrass, bull grass (goose grass), crab grass, foxtails, pigweed, barnyard grass, chickweed and lambsquarter.

VEGADEX IS SAFE FOR

broccoli, Brussels sprouts, cabbage, cantaloupes, cauliflower, celery, chicory, lettuce, collards, endive, kale, mustard greens, nursery stock, okra, spinach, tomatoes, turnip greens, hanover salad, snap beans, lima beans, soybeans, garden beets, and sweet corn.

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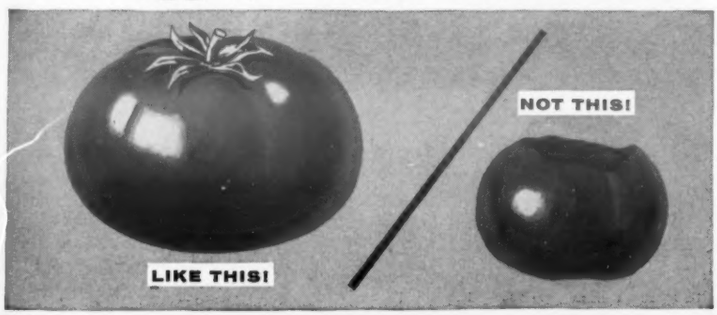

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Tomatoes that are dwarfish, spotty and quick to develop blossom-end rot often indicate that the soil is lacking calcium. Here's where BEN FRANKLIN Agricultural Gypsum can do an important job for you. By fortifying soil with generous amounts of neutral calcium (the calcium most quickly utilized by plants), BEN FRANKLIN makes your next tomato crop grow bigger, healthier. And it helps you farm better by doing six other important jobs besides:

- Supplies sulfate sulfur
- Stimulates soil micro-organisms
- Conserves nitrogen in manure
- Improves drainage of wet soils
- Breaks up plowpans and compacted soils
- Clears muddy ponds

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FLORIDA FARM MARKET PAGE

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SPECIAL, 1000 each large Marsh on sour, Marsh on rough lemon, Parson Brown on sour, Parson Brown on Cleo, Sweet Seedling on Cleo, Hamlin on sour, suitable for resetting or canning. Also registered Valencia, Hamlin, Pineapple, Parson Brown, Marsh Seedless, Orlando Tangelo, Dancy Tangerine budwood for sale. EAST HILLSBORO CITRUS NURSERY, Route 1, Box 607D, Valrico, Florida. Phone, Tampa 49-4655.

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Blackberry plants, Flordagrand, developed by U. of Fla., especially for Fla. soils, 50¢ ea. prepaid on $5.00 order for 10 plants only. H. A. SIMPSON, c/o Lucky Acres, Geneva, Florida.

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(Continued on Page 27)

Pangola and Nematodes *(Continued from Page 25)*

to pangolagrass, the following four studies were initiated on the mode of action involved.

Roots, stems, and leaves of pangolagrass were separately macerated in water. The resultant crude extracts were used to water cucumber plants in pots of nematode-infested soil. After about three weeks, the cucumber roots were washed clean of soil, inspected, and rated for galls.

Young white pangolagrass roots were separated from the old brown roots. The extracts of each were tested against the nematodes.

Leachates were obtained from pots of soil in which pangolagrass was growing, then applied to clover growing in root-knot infested soil. Soil samples were collected from the clover plots, placed in paper cups, and seeded to cucumbers in order to determine the population levels of nematodes in the clover plots.

The effect of the "old" and "young" pangolagrass root extracts on the hatching of nematode eggs was determined by placing root-knot galls and egg masses in watch glasses to which were applied the extracts and a distilled water check. Emerged nematodes were counted two and four weeks later.

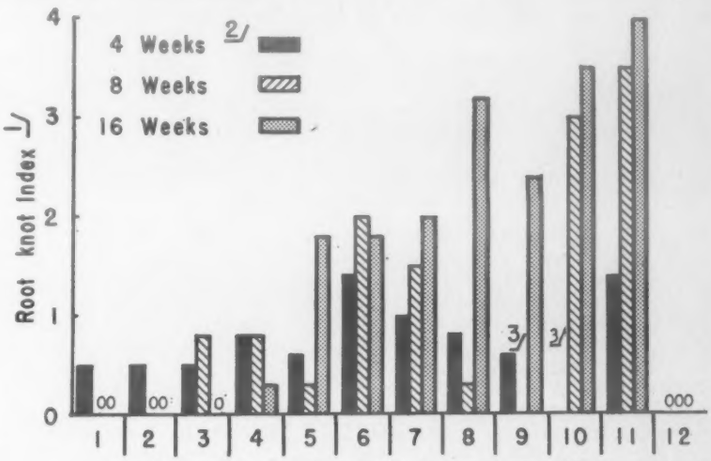
It was established in these studies that extracts or leachates from pangolagrass roots influenced galling on cucumber seedlings.

Crude water extracts of mature or brown pangolagrass roots appeared to give good control when applied daily to cucumber seedlings growing in nematode-infested soil. Extracts of the leaves and stems, however, had little effect on the nematode population.

Galling of the roots of cucumber plants which had received the extracts of young pangolagrass roots was more severe than those of the check which received only distilled water (Table 1). This comparison of young and old pangolagrass roots was the same in the four separate tests.

Leachates collected after passing *(Continued on Page 30)*

EFFECT OF SEVERAL TREATMENTS on root-knot nematode infestation in Immokalee fine sand. Treatments were: *(1)* clean fallow; *(2)* pangolagrass; *(3)* clean fallow plus flooding; *(4)* coastal Bermudagrass; *(5)* common Bermudagrass; *(6)* crabgrass; *(7)* Pensacola bahiagrass; *(8)* Louisiana S-1 white clover; *(9)* Gahi millet; *(10)* sedge; *(11)* carpetgrass; and *(12)* La. S-1 in soil free of root-knot nematodes.



[1]Root-knot index 0 — 4: 0 = no galls; 4 = very severe galling.
[2]Soil samples collected in each treatment 4, 8, and 16 weeks after treatments were established.
[3]The indicator plants damped-off and no rating was made.

FLORIDA FARM MARKET *(Continued from Page 26)*

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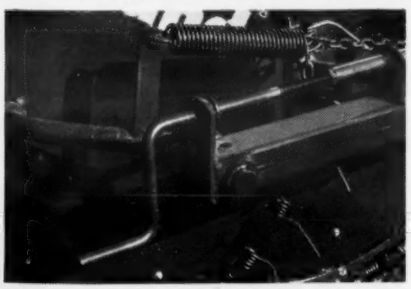

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Editorial Comment

J. Francis Cooper Retires

No longer will the familiar face on this month's GROWER cover be daily seen investigating agricultural activities around the University of Florida campus. Nor will the distinctive rat-a-tat-tat of his typewriter, which meant he was four-fingeredly attacking the keys with machine-gun speed, signal the forthcoming announcement of important research findings. For J. Francis Cooper, editor of Florida's Agricultural Experiment Stations and Agricultural Extension Service for more than 36 years, retired April 30th.

Cooper, a quiet-spoken Alabama farm boy then only four years out of college, came to Gainesville in 1925. Since then, he has written millions upon millions of words about every phase of Florida agriculture. And he has utilized every communication medium available—magazines, newspapers, radio, and television—to disseminate information of value to Florida farmers.

Interestingly enough, becoming a writer was not Cooper's original goal. He was majoring in animal husbandry, as a matter of fact, until a senior course in agricultural journalism upset his previous plans. Yet so well has he done his job that today experts say he knows more about Florida agriculture than any other one person in the state.

"Florida has made tremendous agricultural progress over the years," Willard M. Fifield, University of Florida Provost for Agriculture, declared recently, "and Mr. Cooper has been outstanding in keeping people informed of this progress."

To keep the people informed, Cooper has written countless articles for magazines and newspapers, edited thousands of publications for the Extension Service and Experiment Stations, and authored untold numbers of editorials under both his own name and the pseudonym "Spuds Johnson". In 1928 he established radio's Florida Farm Hour, one of the oldest continuously broadcast farm shows in America. And, taking the newest medium in stride, he became an agricultural news reporter on television in 1953.

On the extra-curricular side, Cooper has addressed numerous agricultural journalism and "ag" classes. He helped initiate and carry out a program of training home demonstration agents and other Extension personnel in public relations. After serving as 1938 president of the American Association of Agricultural College Editors, he played host to that group in Gainesville in 1959.

Unfortunately, space does not permit a more detailed list of Cooper's many accomplishments since 1925. Suffice it to say that he is the acknowledged dean of Florida's agricultural writers, that he rightly has been called "the editor of Florida agriculture", that he has richly earned a rest.

Personally, though, we've a sneaking suspicion that "J. Francis" plans to remain fairly active in matters agricultural. One straw in the wind is the itinerary . . . Egypt, Aden (where Florida plant pathologist L. C. Knorr has been stationed recently), Pakistan, India, Ceylon, and Malaya as well as New York, Paris, Genoa, Hong Kong, and Toyko . . . the Coopers will follow when they leave June 24th on a long-awaited, globe-trotting trip. Another "straw" is the fact that Cooper will serve as a state chairman when the Association of Southern Agricultural Workers holds its 1962 sessions in Jacksonville next February.

J. Francis Cooper celebrated his 63rd birthday last March. His years of service to Florida agriculture represent more than half of his lifetime; this alone would qualify him for retirement. Cooper, however, has served above and beyond the call of duty. His efforts have been untiring; his achievements, stupendous.

In short, J. Francis Cooper has proved himself preeminently worthy of the title "Friend of the Florida Farmer".

Letters to the Editor

Teaching Aid

Dear Sir:

There are several articles in the February 1961 FLORIDA GROWER & RANCHER that I would especially like to use as assigned readings in my classes of vocational agriculture.

If you have extra copies of the February 1961 issue, it would be greatly appreciated if you could send us ten copies. You may be assured that they will be used.

Bruce Howell
Lakeland, Florida

(Mr. Howell is a teacher of vocational agriculture at Lakeland Senior High School. We were happy to send him the magazines he requested.)

Approves Editorial

Dear Sirs:

I wish to compliment the writer of the lead editorial in the April issue of FLORIDA GROWER. It is so rare to find a writer who can think clearly and who has the guts to state the facts. Since the United States has lost its backbone and become soft and effete, we do not like those who bring unpleasant facts to our attention.

All throughout history, the same sorry story has been repeated. When a nation started down the road to oblivion, it has always turned against those who warned them of impending doom.

This country is financially, morally, politically, and intellectually bankrupt; its day of receivership is not far distant. I commend those who have the fortitude to state the facts, but it will be of as little avail as were the warnings uttered by the wrathful prophets of the old Hebrews.

There is no case in history where a nation has gone this far into decline and recovered under its own leadership. There is no reason to expect that the United States will be an exception.

S. C. Hood
Tampa, Florida

(The April editorial which Mr. Hood so heartily endorses was entitled "Buying Socialism — On the Installment Plan.")

Louisiana Purchase

Dear Editor:

In the April 1961 issue of your FLORIDA GROWER & RANCHER on page 2, under "How Smart Are You?", I read the first question (what was the biggest real estate deal in history?) and I said Alaska.

Why Louisiana??? Alaska has over 586,000 square miles. Louisiana has 48,506 square miles.

I always understood we purchased Alaska from Russia. How about that?

R. G. Cornelius
Rhinebeck, New York

(Apologetically, we must confess we goofed . . . in the wording of our answer. It should have read "The Louisiana Purchase" instead of "The purchase of Louisiana."

(The Louisiana Purchase in 1803 increased the national domain by about 140%. From the area included in the purchase were carved all or parts of 13 different states, representing a total of more than 1 million square miles.)

THUMMER GREEN — — - - - SHARMAN

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Keep Records on Fishing Facts, Too

Keeping records pays off . . . even in non-business matters.

Every farmer knows, of course, that he ought to keep records on his farming operations. But a Tennessee zoology professor has come up with another aspect of record keeping.

He tried it and he came to some unusual conclusions. His records were on fishing – where, when, and what is caught.

Just as is the case when tabs are kept on farming operations, the professor's records paid off.

For example, records on a year's fishing in Tennessee lakes revealed that bass bite better in November than during any other month in the year; that October runs a close second. June and July, statistics showed, were the worst months.

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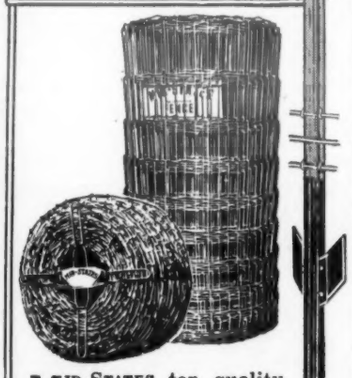

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Rainbow-user Harry J. Andrix (right) of Merritt Island, Florida, checks high quality and yield of one of his groves with his IMC man, Robert S. Carlin.

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Table 2
The Effect of LEACHATES FROM PANGOLAGRASS, Applied to Clover Growing in Root-Knot Infested Soil, on the Population of Nematodes

Treatments	Weeks After Treatments Were Started 2	4	6	8
Check	2.6[1]	0.3	2.3	2.6
Sod-planted pangolagrass	0.6	0.0	0.0	0.0
Sprig-planted pangolagrass	1.0	3.6	0.0	0.0

[1] Rating: 0 (no galling) to 4 (severe galling).

Pangola and Nematodes *(Continued from Page 27)*

through the soil in which well-established pangolagrass was growing and used to water white clover growing in root-knot infested soil also resulted in a sharp reduction of nematodes.

The leachates collected from newly-sprigged pangolagrass four weeks after planting the grass and applied to cucumber seedlings growing in infested soil appeared to increase the galling on the cucumber plants. However, leachates collected six weeks after planting eliminated all evidence of nematodes on the cucumber roots (Table 2).

Extracts or leachates directly affected the nematodes, it was established in the egghatching test. Nematode egg hatching was delayed or inhibited in a medium of the crude extract of old pangolagrass roots. In a medium of the crude extracts of young pangolagrass roots, hatching was stimulated (Table 3).

Nematodes were apparently eliminated within a short time after planting pangolagrass in the experiments reported. In commercial practice, though, an interval for reduction of nematodes may be much longer.

The time required for root-knot control and the degree of success in reducing the nematodes would be related to the speed of establishment of the pangolagrass and the degree of purity in stand of pangolagrass, respectively. A minimum of two years in pangolagrass probably would be necessary in most cases. A mixture of pangolagrass and other grass and weed species could not be expected to give the degree of control obtained in these experiments.

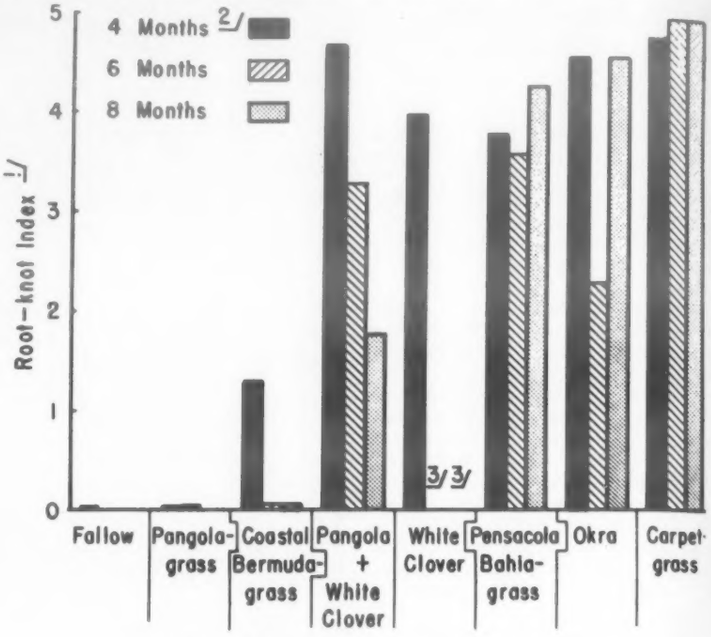
"Pure" stands of pangolagrass may be obtained by (1) planting in the spring, (2) using a large amount of good quality planting material, (3) supplying adequate moisture, and (4) fertilizing heavily with high nitrogen fertilizer.

Clean fallow was about equal to pangolagrass in controlling this nematode. However, pangolagrass should be a more desirable method of control because the grass may be utilized for planting stock, hay, silage, or grazing and because the

Table 3
The Effect of PANGOLAGRASS ROOT EXTRACTS on the Emergence of Root-Knot Nematodes from Egg Masses

Treatment	Average Number of Nematodes emerged
Old pangolagrass root extracts	54
Young pangolagrass root extract	1510
Check, distilled water	724

CUCUMBER PLANTS showing the effect of several treatments on established infestation.



[1] Root-knot rating index 0 — 5: 0 = no galls; 5 = very severe galling of cucumber indicator plant roots.
[2] Soil samples collected and seeded to cucumbers 4, 6, and 8 months after the treatments were established.
[3] White clover died, probably due to root-knot injury.

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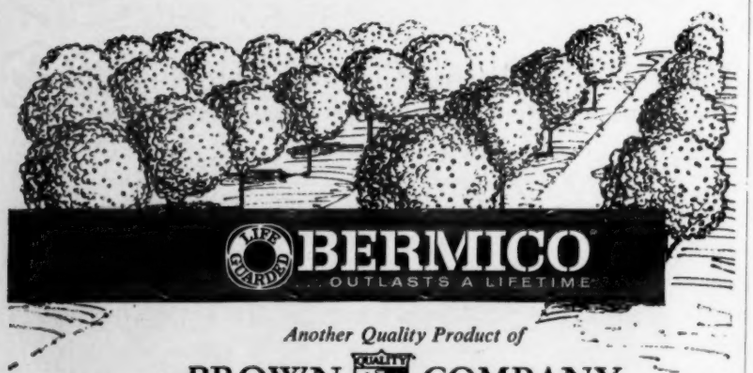

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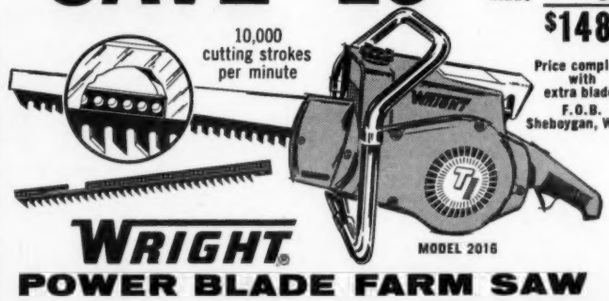

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It should be emphasized that the research reported deals only with the control of the cotton root-knot nematode. Additional studies with other parasitic species of nematodes is underway.

Land use practices, the results reported, have a strong effect on population levels of the cotton root-knot nematode.

Much valuable research dealing with chemical control of nematodes has been carried on, both in Florida and elsewhere. However, in Florida little emphasis has been placed on the development of rotations which would hold nematodes at a low level.

A sod-based vegetable rotation would not be applicable in all farming areas, of course. On the other hand, this system might be profitably utilized in many sand land farming sections throughout south Florida.

It is fortunate that pangolagrass – a highly productive pasture grass which is beneficial in ways other than in rotation with tomatoes – is one which appears to sharply reduce the cotton root-knot nematodes.

(Author Hayslip is an entomologist at the Indian River Field Laboratory, Fort Pierce. Mr. Winchester formerly was interim assistant there.)

Observe Child Labor Laws

No matter how much you need added manpower, be sure not to violate child labor laws.

This reminder comes from Sterling B. Williams, regional director of the Wage and Hour and the Public Contracts Divisions, U. S. Department of Labor. He warns:

"At this time of year, Florida's fruit and vegetable growers may overlook federal age requirements. Growers violate the federal statutes if they hire children under 16 to work during hours when local schools are in session."

However, the law does not prohibit boys and girls from working on farms before school hours, after school hours, on any school holiday, or during school vacation.

Different and more restricted rules apply to children hired to work in packing sheds. Williams enumerates these as follows:

For one thing, children under 14 may not work in packing sheds at all. Older boys and girls may do a number of jobs – including leveling, grading, and packing.

Jobs for which 14- and 15-year-olds may *not* be engaged include: loading trucks or trains, operating power-driven lidding machines or automatic stapling machines, manufacturing crates or boxes, sewing bags on a power-driven machine, or working in any room where these jobs are being performed.

Employment of 14- and 15-year-olds in packing sheds is limited to three hours a day outside of school hours on any school day. It is further limited to a total of 18 hours in any school week, with all work scheduled between 7 A.M. and 7 P.M.

When school is not in session, the 14- and 15-year-olds may work a maximum of eight hours in any day or 40 hours in any week. These hours, too, must be put in between 7 A.M. and 7 P.M.

One requirement of federal child labor laws is that the employer maintain a record of the date of birth for each minor he engages. Age certificates may be obtained from local school authorities.

Employers and parents of children wishing to work are invited to seek further details on child labor laws, Williams adds. Information may be obtained from the Wage-Hour field offices at the addresses given below:

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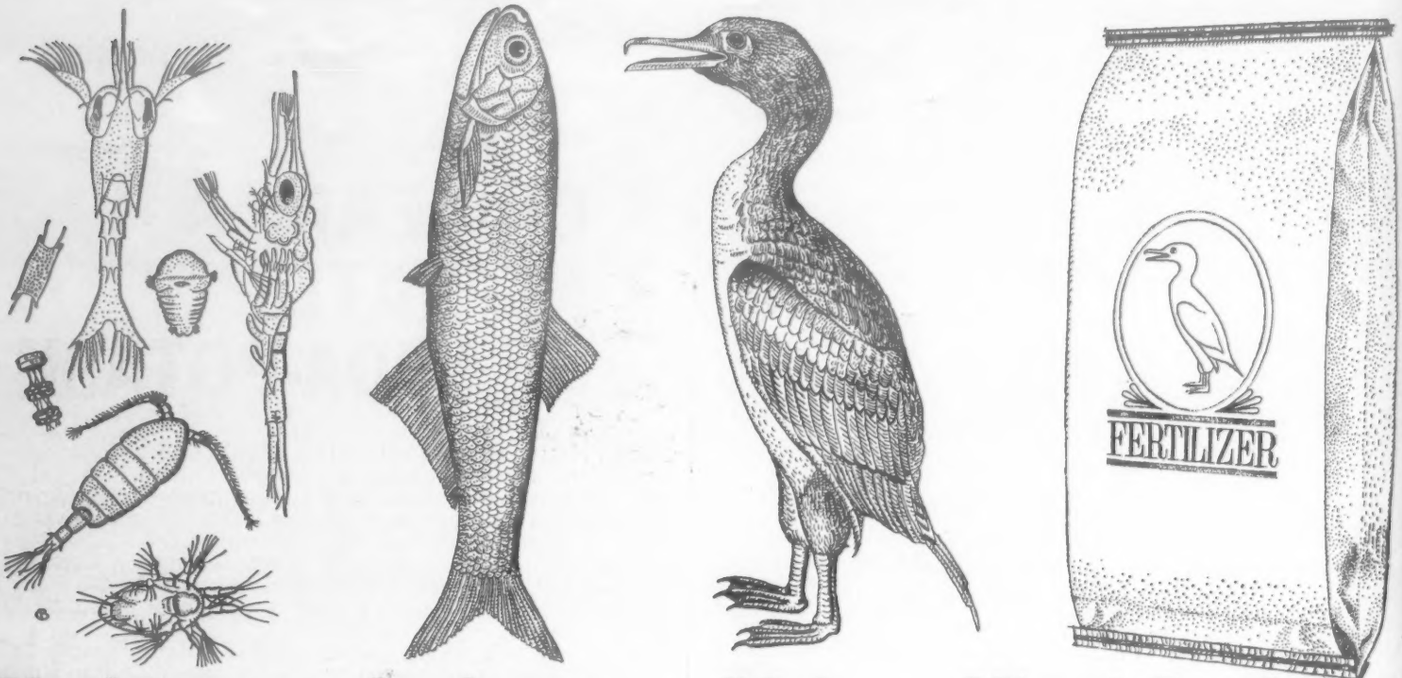

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